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ABSTRACT

This publication consists of 14 selected papers prepared for an international workshop on the problems and relationship between producing vocational competencies for skilled-worker level occupations and controlling and certifying these competencies. Part I outlines the production life and labor market contexts of vocational training and certification and discusses some problems of education/employment match in an age of recession and demands for occupational flexibility. The two papers in part I are as follows: "Working Life Background of Occupations and Certification of Vocational Competence" (Makinen) and "Society, Education, and Vocational Competencies: Towards Flexible Society of Continuous Adult Education" (Rinne, Kivinen). Part II contains descriptions and analyses of the present status and developments of the vocational training and certification systems in Finland, Germany, the Netherlands, England and Wales, Scotland, and the United States." The seven papers are: "Producing and Certifying Vocational Competence in Finland at Present and in the Future" (Melametsa); "Defining and Producing Vocational Competence--The UK Experience" (Handley); "Vocational Education and Training in Scotland" (Seddon); "Qualification, Competence, and Certification in the Modular Vocational Education in the Netherlands" (Streumer); "Some Essentials of the Dual System of Vocational Training in Germany" (Reisse); "The German System of Assessment and Certification in Vocational Training" (Reisse); and "Certification of Occupational Skills and Standards: The United States Perspective" (Bunn). In Part III, some general and occupation-specific problems of competence-based examinations and certification of vocational qualifications are discussed in four papers: "Function and Dysfunction of the Certification System: Closed or Open Structures" (Volanen); "Problems of Certification and Examinations in Different Occupations" (Taalas); "Problems of Certification in Some 'Soft' Vocations" (Niikko); and "The Corporate Classroom: Is There a Possibility of Increasing In-service Education in the Sectors of Retail Industry, the Hotel Business, and Catering?" (Puurula). Part IV contains some concluding remarks in Finnish on the topics of the workshop. (YLB)

Theory into practice

83

ED 374 326

Raimo Mäkinen – Matti Taalas (Eds.)

PRODUCING AND CERTIFYING VOCATIONAL QUALIFICATIONS



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PRODUCING AND CERTIFYING VOCATIONAL QUALIFICATIONS

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The introductory Part I outlines the production life and labour market contexts of vocational training and certification and discusses some problems of education/employment match in an age of recession and demands for occupational flexibility. Part II contains descriptions and analyses of the present status and developments of the vocational training and certification systems in Finland, Germany, the Netherlands, England and Wales, Scotland and the United States of America. In Part III some general and occupation-specific problems of competence-based examinations and certification of vocational qualifications are discussed. The final Part IV contains concluding remarks on the topics of the workshop in Finnish.

Descriptors: vocational education, vocational competence, vocational certificate, adult education, Finland, Germany, Netherlands, Scotland, United Kingdom, USA.

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INTRODUCTION:

The Finnish background for the rationale of the Workshop

Raimo Mäkinen & Matti Taalas

According to a mandate by the Ministry of Education, the National Board of Education shall during the year 1993

- * produce national descriptions of the qualification requirements of vocational certificates for adults in accordance with the principle that, in the initial training of adults, all vocational certificates shall be based on competence examinations, and

- * produce a proposal for introducing final examinations in the initial vocational education of the youth.

Both the reforms aim primarily at strengthening the quality control of the competencies produced by vocational education. They also imply a shift from input control towards output control in the Finnish educational system. Vocational education has until now been centrally regulated by national curricula for all the vocational study programmes (over 200, grouped into 24 "basic lines"). These regulate to a high degree all the formal/full-time education in vocational schools (16+ education) as well as the work of adult training centres and departments (excl. how-

ever, short personnel and employment courses). Because of this input control and regulation of the study programmes, the course contents and teaching, there has been no (external) output control in the form of final/terminal examinations or competence-based examinations.

According to the ideology of the ongoing reforms, ways are sought to allow more flexibility and institutional autonomy in planning and running vocational education. In youth education, also the students would be allowed more individual freedom in deciding what courses they include in their studies, i.e., instead of the strictly structured study lines there would be more room for individual study programmes. Even greater flexibility and freedom is sought in vocational adult education where, according to the reform plans, only the goals of training (description of the competencies required for a certificate) are to be set centrally. These requirements are to be equal to the vocational goals of 16+ education. The main objective is to

increase flexible utilization of all the work and study experiences that adults may have for obtaining the status of a certified skilled worker.

Under these circumstances, it is felt that more output control is needed, in the form of final examinations (in formal 16+ education) and in the form of competence-based testing (for adult certificates).

Concerning initial education of the youth, this attitude is common especially among employers who seem to suspect that "too" flexible/individual or broad study programmes may not lead to adequate qualifications for the skilled worker occupations of the working life. On the other hand, however, some educationalists and analysts of the development of the working life may see the final examinations as threatening the flexibility and broader goals of youth education - especially when influenced "too" much by the local employers or by the job structure of the present (or of the past). Thus, the issue is somewhat controversial and further discussion on the goals, functions and forms of the final examinations is needed.

As to the examinations and certificates of adults, one controversy concerns the degree and interpretation of the similarity of the goals of vocational youth and adult education. Even if it is generally held that vocational adult education, like youth education, should qualify for the same, pre-defined broad occupations, it seems to be difficult to

agree upon the basis and description of the common goals and requirements. There is more readiness among adult educators to describe the competence requirements in terms of jobs and task combinations of the working life, while youth educators orient themselves more in terms of curricula and of conceptions about the processes through which vocational skills are acquired in formal education. Further, the idea of defining and describing full/broad occupational competence as divided into meaningful modules (each of which is to be tested separately) is received differently by adult educators from different branches. Fewer problems seem to arise in the domains of technical and traditional business and service occupations than in the case of some less traditional (service) occupations or in youth education as a whole.

Thus, ongoing national reforms of vocational education, parallel at the upper secondary school level and in adult education, provide the context and rationale for the Workshop in which Finnish experts and researchers have an opportunity to concentrate on the problems of examinations in vocational education and, especially, have first-hand information about experiences and ongoing developments in countries with more experience of vocational examinations.

Our guests from abroad represent expertise in the vocational training and certification systems of Germany, the Netherlands, England and Wales, Scot-

land and the United States of America. While each of these countries belong to the highly developed societies, their vocational education systems represent important variation in the ways of organizing the production and certification of vocational competencies. Analyzing and understanding this

variation is of a special importance for Finland as a means for broadening the perspectives we have on our own problems. It is hoped, of course, that also the experts from abroad found the Workshop a useful opportunity for exchanging and comparing experiences with each other.

PART I:
SOCIETY AND PRODUCTION AS
DETERMINANTS FOR THE CONCEPTIONS
OF SKILLED-WORKER OCCUPATIONS
AND VOCATIONAL COMPETENCE

WORKING LIFE BACKGROUND OF OCCUPATIONS AND CERTIFICATION OF VOCATIONAL COMPETENCE

Raimo Mäkinen

The article outlines some aspects of the relationship between organization of production and working life and conceptions of skilled-worker occupations and competence. Problems of defining, producing and certifying vocational competence for youth and adults are discussed in the contexts of flexible organization of production and different types of labour market.

INTRODUCTION

Educational systems and institutions can be conceptualized as being semi-autonomous living systems which develop, survive, function and fade away in interaction with their local and national environments. In addition, national systems interact with their counterparts abroad, adopt and develop similar structures and functions without being fully dependent on the national conditions.

Considering different parts of the educational systems, international variation turns out to be far greater in vocational education and training than in primary education, academic upper

secondary education or higher education (Jallade 1989; OECD 1989). Vocational education obviously is/has been, by its very nature, more closely than other sectors of education, related to its national context, social structures, and economic and industrial life. There seems to have been less genuine need for international interaction of the vocational training systems and, accordingly, more space for their dependence on national traditions. For better understanding of foreign (and own) vocational training systems one would need to know a lot about the working life backgrounds of the systems as well as about the traditions they are based on.

Two or three conditions are of

special importance in promoting international interaction between vocational education systems: supranational economy, similarity in the organization and technology of production, and supranational labour market. Just referring to the ongoing European and global development one can easily understand why policy makers, administrators and researchers in the field of vocational education, too, get involved in comparative analysis of vocational education. It concerns more than a mere search of importable tricks or solutions from abroad - or writing, like Marco Polo, scholarly stories about the educational peculiarities of foreign cultures. Even this meeting participates, for its small part, in the interactional process of the vocational training systems.

In this workshop we are interested, firstly, in comparative analysis and understanding of the practices in producing and certifying vocational qualifications for skilled-worker level occupations. Secondly, our interest is in vocational training and certification of adults as compared with initial training and certification of the youth.

The aim of my introduction is to outline some aspects of the relationship between production and working life and conceptions of skilled-worker occupations and vocational competence. It is hoped that this kind of orientation could help us to understand - at least - why we do not easily understand each other while comparing our vocational

education systems.

OCCUPATION, VOCATION, COMPETENCE/QUALIFICATIONS AND CERTIFICATION

My "New Comprehensive Finnish-English Dictionary" gives five equivalents for the Finnish word *ammatti*. Four of these refer to the division of labour or to the posts and positions in the working life and society (to be occupied by or to occupy groups of persons). These are *profession*, *occupation*, *trade* and *craft*. The fifth equivalent *vocation* refers more strongly to the person, his/her "calling" and participation in the working life and to his/her qualifications for the occupations. I feel this differentiation between occupation and vocation as well as between different types of occupations is very important - at least to the Finns who, with their one word for all these, may tend to think and talk somewhat diffusely about the topic.

Professional competence or qualifications refers to the skill and ability requirements to be met by the occupants of the occupations - seen as prerequisites for successful or at least satisfactory performance in the occupation. Competence is something defined and required by the occupation and possessed by the person.

There are alternative ways of producing/providing (on the part of society) and acquiring (on the part of the

person) the qualifications for different occupations. In principle, the alternatives are work experience, formal education and training or some combination of these.

One's competence for a given occupation may or may not be formally *certified*. The certificate can be awarded by the body responsible for producing the competence or by some external bodies. The certificate can be based on the training process and/or on the outcomes of training, i.e., on competence testing or examinations. (Pierret & Sellin 1993). In other words, the certification system can be an integral part of the training system but it also can be located more or less outside of training. In the latter case the certifying system functions as an external control of the training system and/or as a mediator of the needs of the working life to the educational system.

PRODUCTION LIFE BACKGROUND OF THE OCCUPATIONS

The types of occupations are historical products and differ in their historical background and tradition. Even if the number of professions has been increasing and that of the crafts has declined, it seems that there is less international variation in conceptualizations of these older categories of occupations. Competence for the professions has been traditionally produced and certified by university studies, and

training and certification for the crafts has taken place within some kind of apprenticeship and guild system.

White-collar occupations and blue-collar trades can be seen as younger products of the rise of capitalism and industrial production. The differentiation and expansion of these occupations can also be seen as background for the development of the present formal vocational education in commercial, technical, trade and vocational schools (OECD 1989). Originally many of these schools offered, as an alternative of the academic Latin schools, pragmatically oriented education to the offsprings of the burgers and prepared for white-collar or foreman positions in public administration, trade and industry.

Differentiation between the four types of occupations has been under continuous change and is anything but clear in the production life of the present. There has been a drift towards professionalization among the white collar occupations and the boundaries between blue-collar/manual work and white-collar work have blurred. However, the present practices in producing and certifying competencies for different occupations obviously relate to the background and tradition under which they were developed.

PRODUCTION, LABOUR MARKET, OCCUPATIONS AND TRAINING

Labour market functions as a media-

ting system between production and education. Three types of labour market can be differentiated from each other, as reflecting different models of division of labour and organization of the production, on one hand, and different conceptions of occupations and vocational competence, on the other.

Free or *everyman's job-based* labour market would mean that the work is organized into jobs which are open for "everyone", without pre-defined requirements of vocational competence. *Occupation-based labour market* implies that the production work is organized in terms of occupations that require commonly known types of competence, and the group of employees who can apply for a given post is restricted to those with that competence. Thirdly, the labour market may be *company-based* in the sense that the employees apply for and are hired by companies without pre-defined occupations or vocational competencies.

More or less unrelated to the markets of paid/salaried work, a part of the goods and services are produced by self-employed persons. And, finally, varying amounts of goods and services are produced in private households for their own use and outside of the GNP book-keeping.

The share of production related to different types of labour markets varies between societies, between branches of industry and in time. Different types of occupations tend to be related to the different types of labour market. They

also imply different conceptions of vocational competence as well as differences in the training and certification systems - or, at least, differences in the kind of relationship of the latter systems to the production and labour market systems. One difference concerns the degree to which vocational training and certification belongs to the tasks of secondary education, lower or upper, instead of tertiary or continuing education and/or to the working life.

Job-based labour market concerns un- or semi-skilled work with less connections to vocational training or certificates. Occupation-based labour market is the one most directly connected to a vocational training and certification system with a high degree of stability and transparency. Company-based labour market is typically related to less specific (perhaps also coupled with high general) requirements of entrance qualifications and implies some kind of intra-business labour market and intra-business training and certification system.

Self-employed participation in production life varies in its relations to occupational training and certification systems. It consists of well-defined professions, licensed self-employment and of various "entrepreneurs" (inc. farmers) who may or may not possess vocational training.

The relationship of training/certification systems to the production and labour market systems is one of recip-

rocal interaction. Without exaggerating the functions of the education system (as may have been done) it still can be seen as one playing its role in shaping the production life and labour market - instead of just depending on these.

FUTURE PROSPECTS

There are alternative and contradictory conceptions about the developmental trends of the production life and about their effects on the training and certification systems. The visions of general *dequalification* of work or *polarization* of the qualification requirements imply that the job-based labour market would expand and that many/some people would not profit from vocational training or certificates. In the case of polarization, a higher level of qualifications would be required among some part of the labour force. In both cases the scope of traditional skilled-worker level work, organized into pre-defined occupations, would be decreasing.

Similarly, the visions of *flexible* or *network organization* of economy and production life imply changes in occupational structure and, perhaps, expansion of the company-based labour market. High competence would be required of the core personnel of the firms while a part of the marginal personnel could consist of more narrowly specialized or semiskilled workers to be hired from the job-based labour market. Company-based

specialization and new occupations would be created by expansion of the subcontractors - with their own core and marginal employees.

Some kind of *flexibility* is implied by most visions of the future - flexibility in organization of production, in division of work and occupational structure of the working life, in the labour market as well as in vocational education and certification. The latter systems are expected to respond - and to contribute - to the changes in the former ones.

Flexibility and change of the working life mean low predictability of the structure and contents of the occupations for which people should be trained and certified. On the other hand, more structure and transparency of the certified competencies seem to be required by the development of international labour market - in Europe, for example.

In the case of the training system, four alternatives seem to be open. Firstly, it might give up trying to train people for occupations it can not know and concentrate itself on "education for change" and on general or core qualifications - and leave vocational training for the working organizations. No occupation-specific competence or certification would be aimed at or needed.

Secondly, the educational system might aim at producing flexible vocational competencies by means of horizontal broadening of the content of training, by preparing the students for

a branch or a set of related occupations. In practice this might mean that some kind of entrance competence for the occupations of the branch only could be achieved and certified.

Thirdly, flexible competence can be sought by vertical broadening of training, by combining strong core qualifications and branch-specific theoretical basis with practical specialization in one or two occupations of the present working life. Certification could be at two levels: broader branch specific entrance certification and occupation specific certification for skilled work.

The fourth strategy consists of responding to the flexibility/unpredictability of the working life by flexibility of the training process and content. Various models of modularization of training and/or certification can be used for this purpose and very different outcomes can be achieved by varying the principles of modularization. At one extreme, the outcomes of training are divided into small modules to be taken and combined freely by the students. Achievement of competence for an occupation or branch would depend on what module combinations the students choose - and, in practice, many students obviously would try to make occupationally "meaningful" choices. The possibility to certify for recognizable occupations could be increased by limiting the freedom of choice - or by rules indicating what types of module combinations qualify for which occupations.

At this point, one also can raise the question about possible differences between training and certification of the young generation and that of the adults. Developments in the production life and technology call for increased participation in continued education by the labour force as a whole. As a result of changes in the occupational structure and employment, many adults also find themselves as being in need of initial or re-training for new occupations and, in this sense, in a situation similar to that of the young people. They should, however, be trained and certified for the occupations of the present and tomorrow, not so much for the working life of the 21st century. But, on the other hand, the young people, too, have to enter the present working life - without any possibility to jump directly to the 2010's for which they also should be trained. Does this, in addition to differences in the background and life situation of the trainees, lead to differences in how different age groups should be trained and certified for the production life?

CONCLUSIONS

In conclusion, a set of questions are formulated - without answering them but believing that putting a question often contains more than half of the answer.

Given the present and future organization of work in the production life

in our countries, what is our conception of skilled-worker level occupations/trades for which vocational qualifications are produced and certificates awarded? What is/will be/should be the share of labour force qualified for these occupations and how are these occupations distributed over the branches of production? How similar or uniform conceptions of vocational competence should we hold for occupations in different branches of, e.g., primary, secondary and tertiary production?

On what bases are the skilled-worker level occupations differentiated from semi-professions and white-collar occupations, on one hand, and from semi- and un-skilled occupations, on the other? What changes are going on or anticipated to take place in these differentiations? Do our training and certification systems reflect some active intentions in this respect - do they, e.g., aim at an increase or decrease in the scope of un-skilled and semi-skilled work as an alternative for skilled work?

For what types of labour market are the skilled workers trained? What is the scope and future of occupation-based labour market where skilled workers, with their certified competence for recognized occupations, find employment organized in terms of occupations?

What kind of people are trained and certified for skilled-worker level occupations? In what age and on what grounds do they enter or are selected for training for this type of occupation?

Teenagers: After primary general education - lower/upper secondary general education? Sex, social/ethnic background, school aptitudes? Adults: Few/many? Immigrants, women, unemployed? Volume of certificate-directed initial and re-training of adults as compared with other forms of adult education?

What traditions of vocational training and certification lie behind our conceptions of occupational qualifications - the idea of craftsmanship or traditional service occupations and apprenticeship training or formal training for (lower) white-collar occupations - or something else? In what direction is our thinking on vocational training and certification developing; for what kind of production life, labour market and occupations must we educate the young generation and the adults?

For which occupations, for what purposes and by whom certificates of vocational competence are needed? What are the effects and functions of the certificates - on/in production life, labour market, trade unions, vocational training? On what depends the credibility of the certificates? Under what conditions can a certificate based on a training program and awarded by the training body deserve local/national/international credibility? Under what conditions can a certificate based on competence testing deserve similar credibility?

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SOCIETY, EDUCATION AND VOCATIONAL COMPETENCIES:

Towards flexible society of continuous adult education

Risto Rinne & Osmo Kivinen

Scaling education and training to match the need of labour both qualitatively and quantitatively has been a central objective in educational policy in Finland since 1960's. These goals involve difficult problems, when even a quantitative match of education to employment is persuaded, and even more problems arise, when attention is paid to the impact of over-education, evaluation of the impacts of education, and the correspondence between qualifications and work. To cope with some of these problems strategies for evaluating the match between education and employment are represented, employers recruitment strategies are reviewed on the basis of the role which educational training plays in the recruitment process, and the future objectives of education appearing in the form of demands for flexible production and flexible labour are discussed.

Virtually every day sets a new unemployment record in Finland. With the rate currently creeping up to 20 per cent, Finland is slamming not only earlier national record levels, but also those in all other OECD countries, with the possible exceptions of Spain and Ireland. In such a situation, we cannot discuss the production of skilled labour through education except with very mixed feelings. For at least one in five potential recruits into employment, the 'demands of the labour market' currently mean in practice the 'demands of

the dole queue', and for these people their most rational objective is to prepare themselves for idleness, while attempting to retain some degree of motivation towards work. Educational systems offer very limited means for modifying this state of affairs, since the power of education as such to create jobs (other than for teachers and educational bureaucrats) is no more than marginal.

If, nevertheless, we are willing to put some faith in the 're-industrialization' schemes being proposed in Fin-

land, or for example in the constantly reiterated belief that a country such as Finland stands on the basis of the population's high levels of skills and know-how, buttressed by education and training, then even in the midst of cuts, it is vital to continue to uphold the ideology of the crucial functions of education in society. One central such function is the satisfaction of the quantitative and the qualitative needs generated by the labour market.

In this paper, we shall mainly concentrate on probing the relationship between work and education, and the correspondences between educational certification and working skills. For vocational education, at least, the skills demanded by the job provide the basic frame of reference. We shall ignore, for the time being, the idea that education may be indispensable for society for reasons other than the production of working skills. (In the current situation, in particular, it is impossible to avoid seeing the educational system, especially with respect to manpower training programmes and the like, as a storage reserve for workers currently idle and patiently awaiting the reappearance of opportunities on the labour market indeed, even as a morally preferable alternative to the smoke-ridden attractions of the beer parlour.) Nor is there as yet any sign of a change for the better. The basic problem is that quite simply there are no jobs in Finland, and we now face the prospect of an entire generation gra-

duating straight from vocational education into the dole queue.

THE QUEST FOR A MATCH BETWEEN EDUCATION AND WORK

A close correspondence between education and work has long been a central objective in educational policy in Finland. The first Educational Aims Committee to apply modern manpower methodology to educational policy, back in the 1960s, set itself the task of scaling education and training to match the need for labour. National importance was attached to minimizing both the shunting of people into tasks which failed to match their qualifications, and the emergence of labour shortages in various industries (KM 1969; see Ahola et al., 1991, 47).

This responsibility for quantitative steering now rests with the Standing Advisory Committee, which continues to publish plans following the familiar pattern, the next one being due in autumn 1993. Such a goal involves some extremely difficult problems, however, not the least of which is the mysterious conundrum of the correspondence or 'match' between education and work. In order to achieve even a quantitative match of education to employment, it would be necessary to know which courses lead to which jobs; whether people remain in the jobs they have been trained for; or indeed whether they ever enter such jobs at

all. Career continuity and discontinuity, and occupational mobility, are however topics about which far too little is known possibly even less in Finland than in other countries.

Traditionally, the primary concern in educational policy has been to avert shortfalls in adequately skilled labour (Kivirauma 1992). Ever since the 1960s, however, researchers have also drawn attention to the impact of over-education, in both quantitative and qualitative terms. Quantitative over-education leads to unemployment, to the reduplication of facilities, and to the waste of resources; over-education in qualitative terms, on the other hand, has been found to generate discontent, absenteeism, falling productivity, and even political disruption (e.g. Rumberger 1981; Tsang & Levin 1985; Teichler 1988).

If, on the other hand, our concern is with the evaluation of the impacts of education, we encounter similar problems to those facing the educational planners. In order to be able to carry out a well-grounded evaluation of the extent and impact of either under- or over-education, one needs a reasonably clear definition of what it means when someone is over-educated, or, to be more precise, when a worker is unable to deploy at work the skills acquired through education (or otherwise). For this reason, some American researchers prefer the term 'under-utilization'.

The problems posed in matching education to employment are further

complicated by the dichotomous nature of the qualifications generated through education and training. The term 'qualifications' represents an attempt to pin down the link between education and employment. Even if we do not go any further into 'qualifications mathematics', we can define 'qualifications' as the knowledge, skills and abilities acquired (e.g. through education) and utilized at work. In addition to these real qualifications (i.e. competence), however, the educational system also, or indeed rather, produces certificates: examinations, diplomas, degrees, etc., in other words, formal qualifications, which play an absolutely crucial role on the labour market when labour is being bought and sold. From the perspective of formal qualifications, the question of the correspondence between qualifications and work is not so much one of matching skills and knowledge to tasks, but of matching the hierarchy of educational certification to the hierarchy of social status (Broady 1986; Rinne et al. 1992; Silvennoinen 1992; Haltia 1993).

In our societies, status is very largely acquired on the basis of such formal qualifications. In Finland, especially in the public sector, the formal qualifications required for various appointments are still (despite the recession) codified in regulations and collective bargaining agreements, with the result that the hierarchy of official posts and appointments does correspond very closely to that of education.

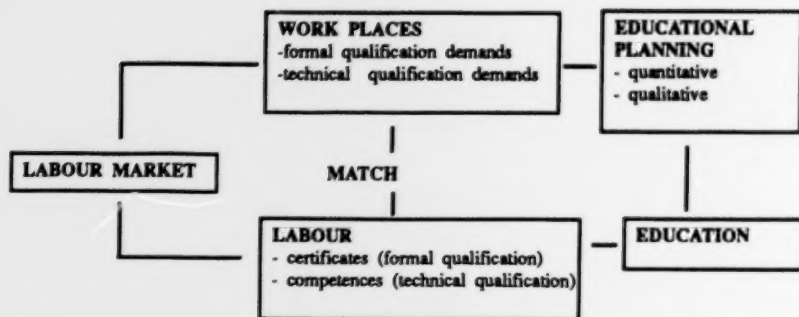


Figure 1. Match between labour qualifications and work place demands

No comprehensive survey is available for Finland with respect to the level of real qualifications (competence) required by the nature of the work. Consequently, it is impossible to assess whether the levels of education and training formally demanded for various jobs bear any sensible relation to the needs of the work itself. Before attempting to evaluate the education offered, therefore, it would be more sensible to undertake first an evaluation of the goals set for education by the labour market, since the 'school-rooming' of vocational training, and a very considerable proportion of the training itself, has been generated by status aspirations as much as by the demands of the work itself.

EVALUATING THE MATCH BETWEEN WORK AND TRAINING

There are three strategies which have been identified by Spenner (1985, 133) for measuring the demands posed in different occupations. In the non-evaluative strategy, a given level of education is simply taken for granted by the educational planners as being appropriate for a particular occupation. In the strategy of indirect evaluation, the level of education or of pay is taken as an indirect indicator of the level of skills demanded in the work. Finally, in the strategy of direct evaluation, as the name suggests, the various dimensions of the demands imposed by the job are assessed as such (Haltia 1993).

These strategies, appropriately modified, can also be adopted as strategies for evaluating the match between education and work.

1) The first strategy would be based on a functionalist assumption that the educations available reflect the prevailing division of labour, and select and prepare individuals for particular occupations or groups of occupations. Nonetheless, the concept of 'level of education' should also reveal something about the real level of education achieved.

2) The indirect strategy implies a cross-tabulation of educations against occupations. Those occupations which recruit a threshold proportion of the individuals completing a particular education would then be defined as 'matching' the education in question. In Finnish educational planning, the 'training as a key to work' concept has mainly been based on this approach. Nevertheless, in fact this method cannot reveal more than the established patterns of employment associated with a particular training; it does not necessarily provide any information about what the optimum match would be. Cross-tabulation, in other words, does not reveal anything about the quality of recruitment (Hinchliffe 1987; Miller et al. 1980).

3) The direct strategy of evaluation would necessitate an examination of

the skills provided by various educations, and the qualifications needed in particular occupations. Once these have both been determined, the optimum matches can be defined. For example: the classifications used in the Dictionary of Occupational Titles (DOT 1991), compiled in the USA for labour administration and occupational counselling purposes, are based upon an attempt to establish the qualifications really needed for particular occupations, by means of job analysis. Analogously, for the purposes of the direct strategy, a thorough evaluation of the skills generated by education and training would require a detailed examination of both the explicit and the hidden curriculum, and some form of objective testing of persons holding completed qualifications. Studies using interviews or questionnaires to explore the match between education and jobs could also be classified under this direct strategy.

Case study questionnaires have in fact been used to some extent in Finland in exploring the match between training and work. At the most general level, what has been asked is to what extent the training received is 'appropriate' to the occupation in which the person is engaged. The findings from surveys such as these indicate that rather more than 10 % of employees feel themselves to be under-educated, 70 % wellmatched, while just under 20 % consider that they are

over-educated for the jobs they are doing. When the investigation is extended to include the mode by which the subjects' occupational skills were obtained, however, the analysis becomes more complicated. If over 60 % state that they have primarily acquired their working skills actually on the job, should such people be termed 'under-educated'? (Kevätsalo 1988; Rinne, Kivinen, Ahola 1993). In practice, moreover, most of the people interviewed evidently interpret the questions about the appropriateness of their training to refer to the match between their education and their position in the status hierarchy. Machine fitters who have received a vocational training as machine fitters, but who are currently involved in highly demanding work which they have learned learnt on the job, are unlikely to describe themselves as 'under-educated'. Graduates in economics who are appointed as 'managers' are unlikely to consider themselves either over- or undereducated, irrespective of the degree of match between the skills taught in their degree and the actual tasks which their appointments may involve (Haltia 1993).

A useful alternative approach to the question of the match between education and work, at least insofar as people's occupations or working tasks at the outset of their careers are concerned, could be in terms not of over- or under-education, but of well-targeted versus off-target training. In an age of

accelerating occupational flexibility, of course, the validity of a concept of training as a 'precision weapon', aimed at a specific occupation, is becoming more and more dubious. The increasing implementation of permanent education will inevitably mean a progressive collapse of such oversimplified images of the match between vocational training for the young and a lifelong occupational choice.

There are at least two important perspectives on the education/employment match which need to be considered (Haltia 1993):

- 1) How well do the qualifications produced by education match the skills needed at work (competence match)?
- 2) How well are the resources invested in the education, and the expectations engendered, matched by the rewards of pay, occupational status and career prospects (hierarchy match)?

The first perspective is concerned with the match between the content of education and work; and in theory, at least, it should be possible to determine this objectively. Mismatch would mean that the skills and information acquired are excessive, or inadequate, or irrelevant for the tasks in question. In the latter perspective, what matters is the social match, between the hierarchy of educational qualifications and that of

societal status (cf. Ahola et al. 1991: 46). Mismatch, in this case, would mean that the expectations and attitudes acquired during education are not fulfilled.

Both perspectives can be thought of in terms of a continuum, with a perfect match at one end and total mismatch at the other. It must also be reiterated that the underlying concept

of 'targeted training', implying a total correspondence between the qualifications provided by education and those required at work, is no longer either realistic or even desirable; in an age of 'flexible employment', it can even constitute a hindrance to the performance of the tasks required on the job; cf. the following diagram (Haltia 1993):

In the first field in this diagram,

		HIERARCHY MATCH	
		high	low
EDUCATION/ WORK QUALIFICATIONS MATCH	high	2	1
	low	3	4

Figure 2. Dimensions of match between education and occupation

one might for example place a technician who is employed as a fitter. In such a case, the qualifications produced by his education would no doubt be in use, but his position in the status hierarchy is not in accord with that which a Finnish mechanic's training will have led him to expect. In the second field, one might place a technician employed in operations control. In this case, there would be a high degree of match both in terms of occupational qualifications and hierarchy qualifications. The third field might contain, for instance, an engineer employed as a sales manager. Here there would be a good hierarchy match, but not much correspondence between the skills taught in

training and those required on the job. The fourth field, finally, might include examples of total mismatch, such as an engineer serving at a supermarket check-out.

Obviously, irrespective of the question as to which qualifications carry recruitment significance on the labour market, every work process necessarily demands some real working skills of the worker. In most cases, the bulk of these skills are in fact learned on the job itself (cf. Takala 1983; Tuomisto 1986). These 'working qualifications' are best considered not as features of the individual, but rather in terms of a relationship between the individual's skills and the demands of

the job. The qualifications are realized in the interaction between the workers' skills and the requirements of the job (Ahola et al. 1991). 'Qualifications' are set in the future tense, since they refer to the forthcoming uses of the worker's knowledge and skills (cf. Broady 1986). In a historical perspective, naturally, this also means that individuals can lose their qualifications, or need to acquire new ones (Salling Olesen 1989; cf. Haltia 1993). Qualifications previously highly valued may (for example as a result of technological innovation) become outdated and useless, or even a hindrance to effective functioning on the job.

RECRUITMENT AND TRAINING OF LABOUR

From the firm's perspective, the focus where expectations set for education and training are realized is located in the recruitment process. The crucial basic question in labour recruitment is quite simple: how can one select the most suitable workers, from the candidates available? For the workers, on the other hand, the aim is to acquire a job with maximum job satisfaction and remuneration, in a respected and healthy environment. Characteristically, it is the employer who selects workers from among the potential candidates: it is rarer (at least at present) for workers to be able to select their preferred jobs from the opportunities

on offer. The labour market can be described as a network of queues, determined for example by region and industry, into which individuals are shunted on the basis of their levels and field of educational qualifications. Indeed, whereas classical economic theory predicates competition for remuneration, under present conditions it would be more accurate to describe trained work applicants as competing for places in the queue (Silvennoinen & Pirilä 1993; see Thurow 1975; Kivinen & Rinne 1988).

At the time of recruitment of new workers, the information available concerning their real skills, abilities and productivity is usually far from complete. Consequently, the employer is forced to rely partly on the image which the applicants project, but also on the message provided by their education as an indicator of their abilities and suitability. The existence of a comprehensive system of educational institutions makes it feasible to make efficient use of the signals provided by educational achievements. With the aid of examinations and educational certification, it becomes possible to carry out a comparison between totally unknown individuals. Moreover, even vocational certification often provides the employer with information over and above that concerning the ability to perform specific occupational tasks. "It is widely believed that an extended educational career is indicative of ambition, a wish to get ahead, self-discipline, a desire to

develop one's potential, the derivation of satisfaction from the completion of long-term tasks, etc. For the employer, the worker's vocational certificate may well not primarily be a signal about working skills in the narrow sense, but rather about the personal characteristics which an extended education is believed to require" (Silvennoinen & Pirilä 1992, 14).

Employers have a wide range of recruitment strategies at their disposal, and the applicants' educational qualifications are only one item in a battery of descriptive features which they can use. These recruitment strategies can be classified into five categories, on the basis of the role which education and training plays in the recruitment process (Silvennoinen 1992: 29-31; Silvennoinen & Pirilä 1993; cf. Moore 1989).

1) Education may fulfil a 'determinative function', in which the best educated applicants will be selected, and other criteria play a secondary role.

2) Education may perform a 'screening function'. Only those applicants who have reached a specified threshold training or educational level will be considered for selection, which is however then carried out on other criteria; education in excess of the threshold will not confer any further advantage.

3) Education may fulfil a 'focusing function'. In this case, if an applicant's

other qualifications are satisfactory, education may play no role as a criterion.

4) Education may also be 'functionless'. Recruitment may be based on the applicants' personality, physical characteristics, etc. Educational qualifications may not even be asked about.

5) Education can also have a 'negative function', in which previous education or training may be seen as a dismerit, disqualifying the applicant for appointment. An (over-)educated applicant may be predicted as becoming bored with the tasks, or be seen as too expensive, or a potential troublemaker.

These recruitment strategies are used in differentiated ways in recruiting workers for different levels of employment. For high-status appointments, typically, formal educational merits are important; competence is documented by certification. For middle-range appointments, formal qualifications are not always required, but may be checked as a guarantee of the applicant's wider potential for overall development. For the lowest levels of appointment, educational qualifications are usually irrelevant (*ibid.*).

For workers in the 'general labour' market, vocational qualifications are in most firms not strictly speaking necessary, and are clearly subordinate to the criterion of previous work experience: there are relatively few firms which

will prefer a highly-trained applicant over a highly-experienced one. For jobs in the middle range, educational qualifications are nowadays often required in Finland, but they can also be compensated for by alternative evidence of suitability. At ground level, vocational training is less necessary in the service sector than it is in the processing industries, less in small firms than in large corporations, less in occupations dominated by women than in those dominated by men. Heikki Silvennoinen and Anni Pirilä (1992) have drawn attention to the paradox that virtually 90 % of the young in Finland complete at least some form of vocational post-compulsory education, yet the level of training they achieve is actually essential for only a small proportion of jobs.

The tendency to distrust highly trained workers at the ground level of occupations is largely explained by the nature of the work. Where the tasks on the job are monotonous, and low on initiative, challenge or responsibility, education is seen as a dismerit rather than a merit. The education would in any case be under-utilized on the job; and unpleasant jobs are readily tied to 'negative qualifications', associated with greater willingness to tolerate monotonous tasks involving little autonomy. A higher level of education may also be feared as potentially raising the employee's cost (cf. Silvennoinen 1992, 30).

At ground level, indeed, firms

often are not even particularly keen on recruiting workers with good results from school. It is mainly in the service sector, and occupations dominated by women, that general education gains respect. In the eyes of recruitment officers, good grades from school and coping well on the shopfloor simply don't go together. Education is not even seen as investing workers with greater reliability or responsibility.

FLEXIBLE PRODUCTION, FLEXIBLE LABOUR

As the Finnish economy plunges deeper and deeper into recession, firms are increasingly in need of workers who are willing to submit to harsher supervision (cf. Maguire 1986; Morris 1984, 343-344; Silvennoinen & Pirilä 1992). In bad times, the image of the ideal worker changes. New recruits are expected to show humility, adaptability, subservience, and overall flexibility. Trained labour can be recruited at cheaper and cheaper rates, and firms cannot afford to pay out more simply for higher levels of education.

Similarly, firms are cutting back on their investment in education and training. In the relationship between work and education, there operates what Arto Juhela (1993), in his study of corporate personnel training, calls the 'time/funding dilemma'. When firms are doing well, no one can be spared from the job for training; but when the

economy goes into decline and there would be time for training, the firm can no longer afford it.

If we take seriously the fashionable claims of the impending disappearance of the traditional single-skill artisan occupations to make way for multiple-tasking in the pursuit of flexible production, the traditional Finnish model of vocational education faces a major challenge. It quite simply no longer makes sense to imagine that people can be equipped at sixteen-plus or nineteen-plus with the occupational skills or 'vocation' to last them throughout their working lives.

It is only a few years since Finland was still enjoying a boom economy, and enthusiastically practising policies of educational optimism, in which the goal was to equip entire age groups with occupationally differentiated qualifications. The prospects for such an approach no longer look encouraging. Possibly, post-compulsory education will in future be expected to do no more than steer labour to the right doorstep (Bills 1988). Already today, a significant proportion of tasks at work are actually in conflict with narrow definitions of a (skilled) occupation. Yet on the labour market, educational certification continues to be relied on, to at least some extent, for the indications it provides about job applicants' characters. In the future, carefully planned models of single-occupational training are going to become increasingly futile in many fields, and

will give way to patterns of alternating work and training, where working skills are learned on the job, and adulthood is permeated by an on-going process of preparation for changing conditions.

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PART II:
DEFINING, PRODUCING AND
CERTIFYING VOCATIONAL
COMPETENCE

PRODUCING AND CERTIFYING VOCATIONAL COMPETENCE IN FINLAND AT PRESENT AND IN THE FUTURE

Leevi Melametsä

In Finland the certificate of vocational competence can be obtained through vocational training programmes, apprenticeship or certification examinations. The article describes the development of the Finnish system and problematizes the future objectives for the background of the coming legislation of competence based vocational examinations and certificates. Descriptors: vocational education, vocational examinations.

A vocational training system which produces vocational competencies and a machinery which attests it is bound to the historical development of the country as a whole. Understanding the Finnish way to produce and certify vocational competence requires a knowledge of some historical facts about the development of the Finnish training system.

SOME FACTS CONCERNING HISTORICAL BACKGROUND

In Finland, vocational training was the responsibility of the guilds until 1864 when these were abolished. This brought about a reduction in the number of apprentices but the apprenticeship system

nevertheless remained for decades the main pathway to vocational competence.

Training arranged at least in part outside the places of employment started in 1848 when the first so-called "Sunday School" for apprentices and journeymen was established. The name "Vocational School" came into being in 1899 when the first school, which arranged both theoretical and practical instruction on its own premises, was established by the city of Helsinki. Practical instruction was given in the workshops which were part of the school. At the legislative level the name "Vocational School" did not come into force until 1920.

As early as 1921 statutes governing compulsory education prescribed that upon completing the six-year primary school a pupil had to attend a two-year

continuation school. One of the goals of this school was vocational training. In the course of the years, continuation schools to some extent competed with apprentice training. As the responsibility of the municipalities for general and initial vocational training increased, the relative number of vocational schools grew at the expense of apprentice training.

This development was accelerated by the Vocational Schools Act which came into force in 1959. The main goal of this legislation was to provide the students with such skills and knowledge as would be necessary for them to become skilled workers after a certain period of work experience. According to this Act, every municipality and town had to establish full-time places for initial vocational training. The number of training places depended on the form of the municipality and the size of its population. After some years, the reform had resulted in a regionally even distribution of vocational schools and full-time training over the whole country.

In the 1960's vocational education kept up with the times following as closely as possible the changes and differentiation in working life. New lines of training continually came into existence. Nobody knew their exact number. Estimates varied between 600-700. Every school was totally independent in the way it organized student selection. A large number of young people remained

forever uninformed of the training alternatives available.

The law governing the development of secondary education, passed in 1978, prescribed that all pupils who had either matriculated from upper secondary school or who had completed basic school requirements should have the chance to continue their studies either at a university or in a vocational school.

In connection with the reform of secondary education 600-700 narrow lines of vocational training were developed into 26 broad basic lines which include about 200 specializing lines. In addition, there are about 50 separate lines outside of this basic line system. The time devoted to general subjects in vocational education is considerable and includes e.g. two foreign languages among the compulsory subjects.

Until the present day Finnish vocational education has been provided by vocational schools. In many fields, education involves practical training in working life, but in its essentials the system is almost entirely school-based. Apprenticeship plays only a small part. Only 2-3 % of all students are studying under apprenticeship schemes.

The vocational institutes are organized according to the field of training. At present there are twelve training fields. This explains why the Finnish vocational training network is made up of a large number of relatively small institutes, in fact almost 500 with an average of 320 students.

WAYS OF OBTAINING COMPETENCE

School-based vocational training is consequently by far the most common way to obtain a certificate of vocational skills. On completion of a vocational training programme in a vocational school a student obtains a certificate testifying to his or her skills and knowledge. No final examination is required. However, for example in the case of nurses, training is controlled by the educational authorities whereas graduated nurses are registered by the health authorities. Annually about 33,000 students complete the programmes at skilled worker level.

Another way of qualifying for a trade is apprenticeship. At present the number of apprentices is 4,700 and annually about half of that number obtain their final certificates. However, the majority of apprentices are young people who have previously completed a vocational school programme. For them, the duration of apprenticeship is shorter than for those who have no prior vocational training.

A third path leading to a certificate is based on the Act of Vocational Competence Examinations. These examinations can be taken at two levels, vocational competence and advanced vocational competence. The former examinations can be taken in 60 and the latter in 35 occupations. Only workers who have years of experience in their occupations or appropriate vocational

training may take those examinations. In recent years the number of participants has been a little over 2,000, of whom only about 1,000 have passed. Competence examinations are arranged by vocational schools and adult vocational education centres licensed by the National Board of Education.

A fourth vocational certificate is awarded in occupations where following a trade is possible only with the permission of the proper authorities. For example a charger working with explosives, an electrician and a welder are examples of such occupations. Their competencies are assessed by the authorities concerned.

The certificates of the last two categories are based on competence assessment examination which lasts from one day to a week. The participants must have gained work experience, and many of them have previously completed a vocational training programme suited to the occupation concerned.

Actual final examinations, which in Central Europe are part of the apprenticeship system, do not exist in Finland. These examinations were abolished in the apprenticeship system in the 1960's. On the other hand, we have a final examination in general education which is held in high regard, namely the Matriculation Examination. It is completely under the control of the Matriculation Examination Board.

SCHOOL-BASED SYSTEM

The question why Finnish vocational training and its certifying system differ so much from those of many other industrialized countries is of great interest. There are many possible answers but I would like to stress especially the following points.

Firstly, school-based training in Finland has a long history. Since 1921 the responsibility of the municipalities for the provision of education and training has been considerable. On the other hand among employers the tradition of work-based training has not developed. In addition, Finland is a sparsely populated country where the number of enterprises who are able to offer apprenticeship has always been small and the enterprises themselves have been unevenly distributed over the country.

Secondly, following World War II until the latter part of the 1980's, educational equality was the main goal of Finnish educational policy. Special attention was paid to equal provision of education throughout the country. For example, the provision of vocational programmes in rural areas was by far more diversified than its industrial structure required. The point of this was to offer all young people equal opportunities to obtain training in the main fields, regardless of their place of residence. Jobs needed for the apprentice system were regionally so unevenly distributed that they did not meet the

challenge of equality.

Thirdly, vocational schools, their teachers and authorities in the central administration were not interested in final examinations. The main reason might have been a subconscious fear that these examinations would reveal glaring differences in the quality of training provided by vocational schools and in the achievements of their students.

Fourthly, employer organisations had been continually demanding final examinations for vocational school leavers. The employee organisations and many of the experts in vocational training were not especially interested in these demands because they were worried about the quality of vocational training strictly based on immediate job requirements.

One essential feature of certifying qualifications in Finland is that, with few exceptions, the value of certificates is low on the labour market. Recent studies conducted by the Research Institute of the Finnish Economy demonstrated that in the 1980's the development of salaries and wages depended more on the seniority of workers than on their training. In addition, the effect of training upon earnings diminished in the course of the 1980's, which was not typical of other developed countries.

CHANGES TODAY AND IN THE FUTURE

According to current thinking, vocational training is seen still too fragmented. Government has decided to continue the reform process by combining basic programmes and specialization lines. Today even the next step is being planned. Basic lines would be replaced by basic vocational examinations which would be broader than the former ones. The certificate could be obtained by a student who has adequately completed a 2-3 -year vocational training programme.

Since the 1970's until the end of the 1980's society assumed main responsibility for every student, and attempted to provide all young people with a general education at as high a level as possible together with a broad vocationally differentiated training. Society was also responsible for centralized planning of educational content and options in accordance with generally accepted goals. Society was also responsible for decisions which took into account the requirements of the labour market.

The guiding force in the aforementioned planning was a desire to prepare the whole population for the future according to the principle of educational equality. The basic school reform, the academic degree reform in higher education as well as the secondary education reform can be included in this category.

Today we are already living in a society which we are not able to anticipate even two years in advance. The number of unemployed skilled workers correspond to the total production of vocational training over seven years. At the same time the main goal of educational policy has been changing from educational equality towards individuality.

Today it is no longer possible to prepare for the future by means of an educational basis common to all students. They have to meet the future as individuals. Also educational policy should be pursued in such a way that the responsibility for the promotion of individual growth and career development should be placed on the shoulders of the students themselves. They are personally morally responsible should it happen that the exchange value of their education proves to be low on the labour market.

In the current decade, preparing for an uncertain future is made even more difficult by the fact that the economic resources available to education are diminishing. This along with many other factors will make a change in the control system of education necessary from an input system to an output system. The schools will be informed in advance of the results which have to be achieved and of the resources available. Evaluating the results will become the main task of the central administration of education. The regulations which govern practical operations will become unne-

cessary.

In accordance with individual values we have begun to experiment with cooperation between vocational schools and upper secondary schools in such a way that a student may study several general subjects and vocational subjects in the school which offers them. The student may take three kinds of examinations; firstly the Upper Secondary Examination which may include vocational elements, secondly the Vocational Examination including upper secondary school subjects and thirdly a Combined Examination which includes elements of both the aforementioned schools so that it corresponds neither to the one nor the other.

It is feasible that in the near future a large number of young people graduating from the vocational schools will not have all the skills needed in working life or the standard of their skills will not be high enough.

Individual values are also becoming evident in the quantitative regulation of study places. In the 1980's the total number of student places was distributed in the different fields of vocational education entirely according to the demands of working life. Nowadays the desires and interests of young people as individuals are also taken into account.

MAIN PROBLEMS

Today, the most important change in the Finnish vocational training system is

that the focus of attention is being transferred from the input of training to its results. Vocational adult training has been a forerunner in this development.

The reform of adult education was planned in the 1970's at the same time as the reform of secondary education. However, adult education and particularly vocational adult training did not become the focus of attention until the latter part of the 1980's when the implementation of the secondary education reform was nearing completion. The Government made two decisions in principle concerning the development of vocational adult training. After these decisions were taken the number of openings in vocational adult training increased rapidly.

The problems concerning a change from resource-based control to a result-based control and the assessment and certification of vocational competence in Finland can be most clearly described if I tell you in chronological order something about the various phases of discussion concerning the implementation of vocational adult training over the last five years.

The most important problem during this period of time has been the question of the accreditation of previous studies and work experience of an adult learner. The first starting point in this deliberation was the fact that irrespective of the ages of the students they all have to enter the same labour market and they will all be confronted by the same requirements of working life.

In drawing up the syllabus for vocational training in the secondary education reform the requirements of working life were taken into account as much as possible. These requirements were put in practice by implementing a syllabus of such content and such subjects as were considered necessary for attaining the skills and knowledge needed to meet the requirements of working life. This syllabus was planned for young people who had 30-40 working years in front of them. For this reason the time devoted to the theory surrounding practical work as well as the time devoted to general subjects was so considerable that initial vocational training for young people could have created a firm basis for surviving changes in the labour market and the continuation of studies in the future.

Shortly after that it was forgotten that these syllabuses were not the direct requirements of working life but only their broad operational interpretations. Therefore and for many practical reasons new syllabuses for vocational adult training were based on the syllabuses for youth vocational training.

The question as to which subjects and course content would be necessary for an adult student, who has previous studies and work experience, and how much he or she would have to study the remaining subjects and content was decided centrally by the former National Board of Vocational Education. At this stage of the development the experience of adult learners was not encouraging.

The formal reductions in syllabus did not correspond with the individual experiences and previous knowledge of adult students. Even after this the syllabus required skills and knowledge which all adults could not regard as necessary for practical working life in the near future. In addition, the extensive requirements of general subjects would create such a threshold as would totally prevent an adult from starting training at all.

The following stage was to create a system where former work experience and knowledge would be taken into account on an individual basis. For that reason a working group was set up whose task was to draw up a "passport" in which would be entered the attests of successfully concluded courses irrespective of the schools where they were passed. The working group failed to create a suitable "passport". The system to recognise prior learning was not created because of the fear of lowering standards in vocational education.

After the aforementioned phase the Ministry of Education took the stand that in vocational adult training general subjects and instruction should be limited to the direct requirements of working life. For those adults wanting to continue their studies additional general courses would be made available at a later date. This change was opposed by many of the experts in the vocational training administration as well as teachers in vocational schools and by the employee organisations.

When the working group failed to

create an inventory of previous studies some vocational adult training experts suggested that earlier skills and knowledge of adult learners could be measured by an examination. It would become a diagnostic tool by which the starting level for an individual's study programme could be determined.

Following on this, discussions took a broader aspect as to how to create an examination which would be at the same time both a final examination and a diagnostic measure of previous skills and knowledge. Some vocational training experts opposed this examination because they regarded it as an unnecessary alternative to the completion of vocational school-based training.

Today discussions centre on an examination which would last for several days and take directly into account the requirements of working life. This alternative is in harmony with the previously mentioned aim that young and adult workers would have to satisfy the same requirements in the labour market. In vocational school-based training these requirements are outlined in the language of syllabus and in the case of vocational adult training in the form of direct examination. In the following text this examination will be called a competence examination as distinct from a final examination.

In theory there are two more or less different ways to provide vocational training and competence (figure), namely a school-based and an examination-based system. Both of them are

built on the same requirements of working life. In the former case the most important factor is a syllabus which interprets the requirements of working life in terms of the goals and content of training. A final examination belongs to this system and measures the goals of the syllabus. In the other case an examination has the main role. It measures directly the requirements of working life and the goals of a syllabus can be then derived from this examination.

THE GOVERNMENT PROPOSITION

In Finland, the objective to create a system for assessing adults' vocational competence was adopted in 1991 by the Government in its Development Plan for Education and University Research for 1991-96. Since then the Ministry of Education has set up a working group to draw up a government proposal which will be submitted to Parliament in the near future.

The starting point of the government proposal was to create such a certificate system as would encourage people to accept and take part in lifelong education. It means, among other things, that the learner may count towards the attestation of his or her vocational competence all valid knowledge and skills which he or she has acquired by work experience and self-instruction. In addition, the opportunity to take part in examinations irrespective of prior formal training will

promote readiness for lifelong learning.

Creating an examination for assessing adults' vocational competence will further increase the responsibility of employers and employees for the content and provision of vocational training. Although this examination is being developed for adults only, it can later be extended to all vocational graduates.

It is obvious that the new assessment of competence will result in better achievements in training and its cost-efficiency. Organising vocational training in accordance with the requirements of working life may open up a new and fruitful approach to the development of the objectives and content of vocational training in Finland, where the gap between theory and practice has been traditionally very wide.

The assessment of competence by the examination of short duration is not, however, unanimously accepted in Finland. Many experts think that vocational competence based strictly on the requirements of today's working life may narrow workers' knowledge and skills unnecessarily, when it can be anticipated that tomorrow will require much broader qualifications. This is a very pertinent warning which must be taken carefully into account. The examination of competence assessment has to be designed so that it also evaluates broader knowledge and skills which are needed in adjusting to the changing requirements of working life in the future.

CONCLUSIONS AND QUESTIONS

It seems to me that in Finland the school-based training system will continue to be by far the most commonly followed pathway to vocational competence. Although result-based instruction is also possible in school-based vocational training a competence examination system would be useful especially in vocational adult training. The implementation of a competence examination would, however, face many difficulties.

Firstly, in Finland we already have a competence examination which, however, has not been highly appreciated either by students, employers or employees. Annually only 2,000 persons take this examination. I wonder whether it would be possible to enhance its esteem so much that it would become an adequate method for competence assessment?

Secondly, if a competence examination were to be extended to all fields of vocational training at skilled worker level it would require a very large organisation for its implementation. Competence assessment has to be as independent of the organisation providing training as possible. My question is, what kind of competence examination can be at the same time independent, anti-bureaucratic and not too expensive?

Thirdly, a competence examination might be an unsatisfactory measure of the skills needed in the interaction of workers themselves and workers and

customers. Could the competence examination system be improved so much that even social skills and moral attitudes important in working life might be assessed?

Fourthly, changes in the requirements of working life are nowadays so rapid that it might prove very difficult to keep a competence examination

abreast with this development. On the other hand the skills and knowledge needed to meet the current requirements of working life might be a too weak basis on the labour market especially in the case of young people. Is it possible to develop such examinations as would be valid in current working life and useful in the future, too?

DEFINING AND PRODUCING VOCATIONAL COMPETENCE - THE UK EXPERIENCE

David Handley

The structure and background of UK's National vocational Qualifications (NVQs) and General NVQs are described. The systems emphasize the outcomes of learning in vocational education, and are based on functionally modulated exams. The NVQs are grouped under the eleven main headings by occupational area. The NVQs are developed by 'lead bodies' which represent the working life interests. The UK national standards have provided a key to the decentralisation of curriculum design and to redefinition of the roles of institutions involved in the vocational education and training. Descriptors: Vocational education, assessment of vocational skills, NVQs, competence based education.

INTRODUCTION

Since 1986 a fundamental reform and rationalisation of vocational education and training in the United Kingdom has taken place, led by the development of an entirely new system of National Vocational Qualifications (NVQs).

The pre-NVQ vocational qualifications system allowed insufficient involvement of employment interests, and was commonly dismissed by employers as basically driven by the "supply side" of education and training. The problem was made worse by the extreme complexity of the system which many found incomprehensible in view of the degree of overlap, duplication and

variation in standards between different qualifications.

As a result the system lacked credibility with employers and much of the training provided within industry led to no certification at all. In addition, while Britain had always had a good track record of producing university graduates and people trained to senior technician and professional levels, skilled workers were not being produced in sufficient numbers. By the mid-1980's only 40% of Britain's workforce had relevant qualifications.

These factors would in themselves have been enough to require the reform of Britain's vocational training and qualifications systems.

However, Britain in the 1980's was experiencing high levels of unemployment and structural change within the economy, with a dramatic shift away from manufacturing into service-based industries. Much of the training that was provided was narrowly job-related, was not transferable and did not recognise the need for flexibility and adaptability in employment.

There was a need to create a single unified qualifications system which allowed for people making major career changes in the course of their working lives, by offering greater access for employed adults to qualify and re-qualify within a VET (Vocational Education and Training) system designed to facilitate life-long learning. This required the development of more flexible and accessible learning systems.

A further reason for greater opportunities to be provided to the adult employed workforce to become better qualified lay in demographic changes which were leading to an aging workforce with smaller numbers of young people entering the labour market, and a growing gap between the ever increasing and rapidly changing skill needs of the labour market and the supply of school leavers.

Following a Review of Vocational Qualifications in 1985-86, it was recognised that Britain's existing qualifications system had become obsolete, and the National Council for Vocational Qualifications (NCVQ) was established in October 1986 to introduce the ne-

cessary reforms.

The reform of vocational qualifications in the UK was intended to:

- raise the standards of competence of Britain's workforce;
- give employers and their social partners a greater sense of ownership over the standards of vocational training;
- rationalise and simplify the system.

Hitherto, vocational qualifications had commonly been specified in terms of the processes of learning and reflected curricula or learning programmes directed mainly at the initial vocational education needs of young people. It was concluded that this had led to an education and training system that was too rigid to meet the needs of the employed adults and placed unnecessary barriers to access and progression. It was therefore decided to depart from qualifications based upon specified learning inputs and adopt a radically new approach.

NVQS AND THE OUTCOMES APPROACH

The fundamental difference between the NVQ concept and the traditional approach to qualifications is that NVQs are specified entirely in terms of the **outcomes** of learning, set out in the form of **statements of competence**.

Shifting the emphasis from the inputs to the outcomes of learning was in-

tended to base the qualifications more firmly on the needs of employment, raise the standards achieved and provide open access to all. Separation of the learning outcomes, the ability to perform to national standards expected in employment, from any prescribed learning processes enabled NVQs to be independent of any prescribed mode, duration or location of learning.

In the UK, the outcomes approach has been used to create a single comprehensive and comprehensible qualifications framework that is designed to provide open access to assessment together with enhanced opportunities for transfer and progression.

The most immediate need was for new modular qualifications to meet the performance requirements of specific occupations while being sufficiently broadly based to take account of changes in technology, working methods, markets, employment patterns and practices. Occupationally specific NVQs, based on the standards of competence required in work, are primarily designed to meet the needs of people who are already in employment and require demonstration of competence under realistic work place conditions.

GENERAL NVQS

Although there is always likely to be a proportion of young people (perhaps 25%) who go straight from school into employment or training for an occupa-

tion at one of the lower levels of the NVQ framework, NVQs are not primarily intended for use in initial vocational programmes for young people who remain in school or full time further education after the end of compulsory schooling at the age of 16.

Much of the debate which has taken place within the UK about the vocational education and training provided for young people has concentrated on when it is appropriate for young people to decide on a particular occupational specialism and what sort of foundation learning should be provided for young people before they enter into occupationally-specific learning. In particular widespread concern has been expressed at the possibility of too many young people being directed into occupationally specific training at the age of 16 without having a sufficiently broad foundation of skills and knowledge on which to build.

Alongside NVQs a parallel framework of qualifications called General NVQs (GNVQs) has, therefore, been under development since 1990/1, with the first GNVQs piloted in the current academic year (1992/3) in schools and colleges. GNVQs are primarily intended for young people following programmes of pre-vocational education and training and are intended to provide a foundation of knowledge and skills as preparation for employment within a very broadly defined part of the labour market. It is envisaged that ultimately perhaps half the young people between

16 and 18 will follow programmes leading to GNVQs. The Government has recently set a target that by 1996, when the GNVQ system has been fully developed, a quarter of young people will already be following such programmes.

It is intended that GNVQs will offer vocational preparation across fourteen broad areas: art/design, health/social care, manufacturing, business, and leisure/tourism (already available at levels 2 and 3), and construction/built environment, science, distribution, information technology, media/communication/performing arts, hospitality/catering, agriculture/land based, engineering/technology and management (under development). GNVQs are being developed at three levels (1-3) in all areas except management which is being developed at level 3 only.

Level 3 GNVQs are designed as an equal-status vocational alternative to the academic qualifications normally required for University entrance (A levels), and act as a bridge between the vocational and academic systems, providing a foundation for both higher academic study and for further vocational training. GNVQs are modular in structure and each Level 3 GNVQ consists of twelve units, eight of which are mandatory, and are recognised as academically equivalent to A levels in at least two subjects. Each level 2 GNVQ consists of six units, four of which are mandatory, and is recognised as academically equivalent to the General Certificate in Secondary Education (GCSE)

in four subjects.

An important initiative which aims to provide a bridging mechanism between the different types of qualifications involves the specification, assessment and certification of a number of core skills which are recognised as common and applicable to a wide range of contexts. Core skill outcomes in communication, the application of number and information technology are currently being piloted in the available GNVQs. Core skill specifications have also been developed in problem-solving, working with others, improving own learning and performance, and foreign languages. Core skills will be assessed simultaneously with other learning outcomes, but recorded in a way that enables evidence of achievement to be transferred between different qualifications.

GNVQs share many features with NVQs but unlike the award of an NVQ, which confirms competence to the national standard required for a defined occupation, award of a GNVQ will not imply that candidates can perform competently in an occupation immediately on qualifying. The difference is that GNVQs are designed primarily for delivery within full-time education with limited access to a workplace. GNVQ candidates will have achieved a foundation of general skills, knowledge and understanding which underpins competence in a range of occupations. The requirements for GNVQs are described in terms of general vocational learning outcomes rather than standards of occu-

pational performance.

Ultimately, the intended qualification destination for all, whatever their initial post-compulsory learning route, will be NVQs, available for all occupations and at all levels of occupation within the labour market.

ESTABLISHING THE NVQ FRAMEWORK

There are 5 levels of qualifications in

the NVQ framework. Level 1 may be categorised as covering the most basic occupational requirements for work at semi-skilled level, Level 2 as a skilled worker level, Level 3 as recognising competence at technician or supervisory level, Level 4 as covering more senior technical occupations and competence in operational management and Level 5 as covering work at the most senior professional levels and strategic levels of management.

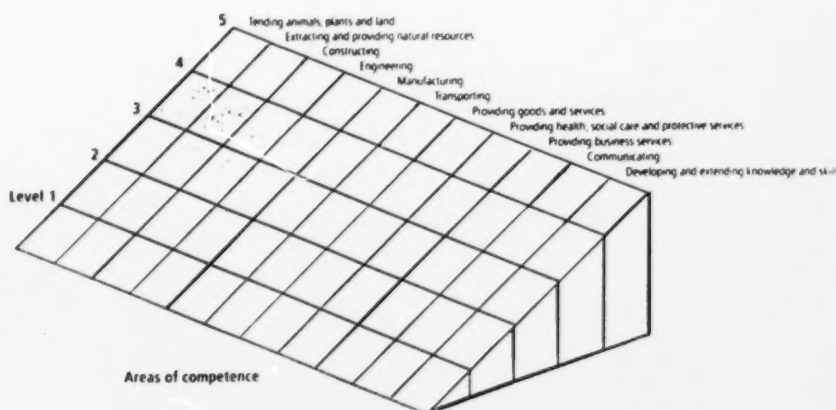


Figure 1. "The NVQ framework"

NVQs are also assigned to a point on the horizontal axis of the framework, which is based upon a classification system within which the areas of competence covered by specific NVQs that are functionally related are grouped together under eleven main headings. It

should be noted that it was necessary to develop a new system for classifying NVQs because existing classification systems used in the UK labour market and in education and training were based on industry, job, subject or training categories rather than the

classification of competence/ occupational functions. The development of the NVQ framework classification was essential to make explicit the lines of progression (vertical) and transfer (lateral) possible within the system.

By the end of 1992 development of the first four levels of the framework had largely been completed with qualifications available which were intended to meet the needs of over 80% of the labour market. The Government has recently set NCVQ a new target of completing the development of the framework, including Level 5 by 1995, by which time it is expected that over 90% of the labour market will be covered. The complete NVQ framework currently contains about 570 statements of competence. The largest number of areas of competence reflected in the framework is at Level 2 at which there are approximately 220 statements of competence, i.e., occupational areas at skilled worker level, recognised.

NCVQ does not itself award qualifications but is a non-departmental public body which approves qualifications on behalf of its sponsoring ministries: the Employment Department, which is responsible for the vocational training system, and the Department for Education, which is responsible for vocational education provided in schools and colleges. Geographically NCVQ covers England, Wales and Northern Ireland and it is also sponsored by two other ministries, the Welsh Office and the Northern Ireland Office, which have

regional responsibilities for education. NCVQ itself does not cover Scotland which has a separate, though very similar and closely-related, system.

The process of approving qualifications is known as accreditation and involves recognising national standards for each area of employment, locating qualifications at the appropriate place within the NVQ or GNVQ frameworks, and approving the assessment and certification systems operated by awarding bodies operating at national level. These are licensed under the contractual terms of Accreditation Agreements to offer the qualifications for a defined period of time, and their quality assurance arrangements are subject to regulation by NCVQ.

THE DEVELOPMENT OF STATEMENTS OF COMPETENCE

NVQ statements of competence, which set out national standards of performance, are developed by "lead bodies" which represent employment interests. Each is led by employers working in partnership with representatives of the work force, and should be sufficiently representative of the sector or occupational area concerned to be able to specify definitively the performance requirements for work in the occupations covered. Because lead body members are not themselves experts in applying the methodology involved, the work of research and analysis is actual-

ly undertaken by technical consultants employed by the lead body. At each key stage the work of these technical experts is put to the lead body for comment and approval, and is monitored for quality by NCVQ.

It has been argued that, ideally, there should have been no more than 20-30 broad-based organisations setting standards across the whole labour market. The time-scale, however, for developing the NVQ system required working through established interests and, although there is a commitment to rationalising the lead body infrastructure in the longer term, about 150 different industry or sector organisations were actually involved as lead bodies in the development of the NVQ framework. In consequence considerable and, arguably unnecessary, demands were placed on the management and resources both of NCVQ and the Employment Department, which was responsible for funding and co-ordinating the standards development programme.

The steps that a lead body goes through in developing occupational standards are as follows:

- Occupational mapping: analysis of the occupational structure of the area of employment concerned to identify all the individual occupations covered by the lead body. This information is not used directly to develop the standards of performance (which are not derived directly from the analysis of individual jobs) but is

essential when making decisions about the requirements for qualifications in the sector of the area of employment concerned.

- Standards development: analysis of the occupational functions within the area of employment covered by the lead body, from which are derived detailed descriptions of the occupational standards required in employment, through a process described below, specified in the form of modules or "units".
- Field tests: piloting the draft standards in a number of typical organisations to find out how accurately they describe the required performance. This involves groups of managers and employees checking out the standards in the course of work. From the feedback reports received, the lead body will amend the standards as necessary.
- Qualification structure: having developed a set of standards reflecting required levels of performance in all the required occupational functions, the lead body packages the units into statements of competence for individual qualifications and a suitable framework of qualifications for the area of employment concerned. For each qualification the statement of competence is a complete statement of all the outcomes on which the qualification is based.

- Consultation: The final stage is to consult employers and appropriate trade unions, and all other interested parties, as widely as possible, both about the standards of performance and the qualifications proposed.

THE SPECIFICATION OF STATEMENTS OF COMPETENCE

"Competence" has been defined by NCVQ as "the ability to perform work activities to the standards required in employment". This has been elaborated by the UK Employment Department as "a wide concept which embodies the ability to transfer skills and knowledge to new situations within the occupational area. It encompasses organisation and planning of work, innovation and coping with non-routine activities. It includes those qualities of personal effectiveness that are required in the workplace to deal with co-workers, managers and customers".

It has been argued that the concept of "competence" as such is an abstraction, which is brought into reality by the setting of employment-led standards that are descriptions of competence in a particular occupational area at a given time and in a particular economic system. The concept of competence in the NVQ system is thus not viewed in terms of the personal attributes and achievements of an individual. The standards on which NVQ Statements of Competence are

based have been characterised as "benchmarks" or descriptors of the expectations of performance in employment, i.e., in a defined work role, against which an individual's performance may be matched and assessed. The purpose of an NVQ is thus to attest to an individual's competence in the sense that the individual has demonstrated performance to the standards associated with the qualification. The NVQ itself is defined in terms of a statement of competence.

The NVQ criteria require that each statement of competence should be sufficiently occupationally specific to have meaning and relevance in the area of employment concerned, while being broad enough to provide flexibility and adaptability in employment, enhance employment and progression opportunities and reflect the ability to transfer the competence across a wide range of contexts and respond to changes.

A statement of competence represents a collection of vocational outcomes which have been arrived at through a process of functional analysis. This involves describing the key purpose of the occupational area and then defining what needs to happen for that to be achieved. The process is repeated, breaking the descriptions down into greater levels of detail, until exact standards of performance have been reached for individual work activities. It is important that the process of breaking down the descriptions stops at a point at which they are still recognis-

able as functions rather than processes or tasks.

Functional analysis is essentially a "top-down" approach, in contrast to traditional "bottom-up" task analysis techniques. The priority placed on the development of functional analysis methodology reflected the experience of early experimentation using task analysis methods including DACUM, which were generally found to produce standards that were narrowly job-related, highly contextualized and process based, not easily transferable and soon out of date.

The end product of the functional analysis process is a set of modules or units which are the building blocks for NVQs, representing a coherent group of outcomes which have meaning and independent value in the area of employment concerned. Units will usu-

ally relate to a discrete occupational function and are certificated separately.

Because of variations in the "size" of occupational functions and in the number of functions that make up different occupations NCVQ does not prescribe a particular number of units for NVQ statements of competence. A statement of competence may comprise a group of units, all of which are compulsory, or a combination of a "core" of compulsory units and "options" of which a defined number may be selected to reflect particular specialisms.

NCVQ has a policy of encouraging the development of "generic" units wherever possible. In practice NVQs will usually include a group of units which are common to more than one NVQ combined with other, more specialised units, that are unique to a particular occupation.

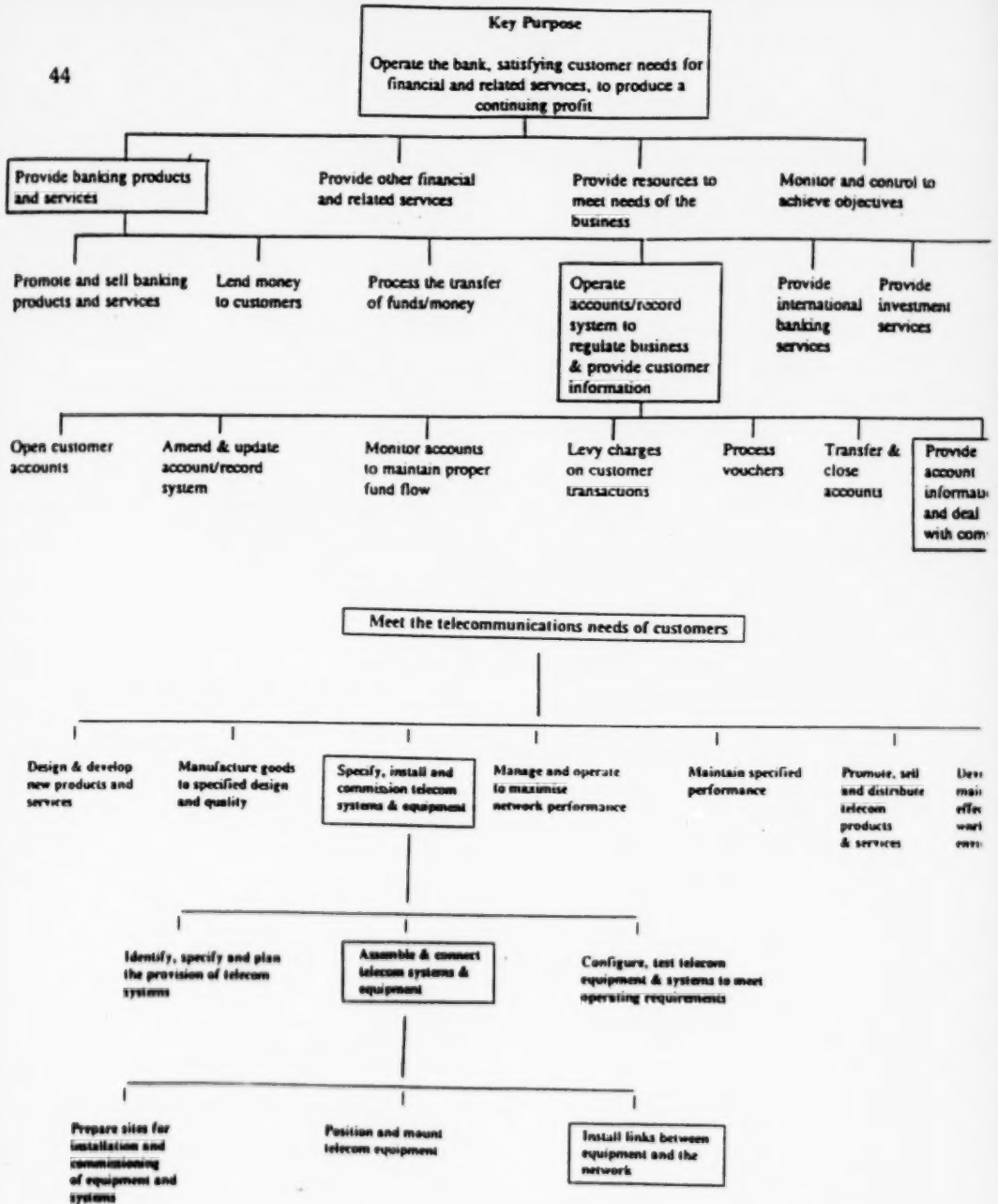


Figure 2. Examples: functional analyses - Banking and Telecommunications

Sources: Banking Lead Body and Telecommunications Vocational Standards Council respectively
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Statements of Competence for NVQs are expressed in a common format and have the following components:

- **Units** - the main building blocks for NVQs - represent a functionally based group of outcomes which have meaning and independent value in the area of employment concerned. A unit will contain a number of
- **Elements** - statements of the things a person should be able to do at work - which represent the level of detail in the specification of outcomes at which assessment takes place. To set the national standard of performance required, there are
- **Performance criteria** - clear evaluative statements which enable performance to be judged and provide a basis for criterion-referenced assessment. The final component is that of
- **Range** - the specification of the range over which performance is required - which might be expressed in terms of such dimensions as context, equipment, customers, scale of operation etc. This introduces the concept of transferability of an activity, as well as setting the boundaries within which an individual is expected to demonstrate compe-

tence.

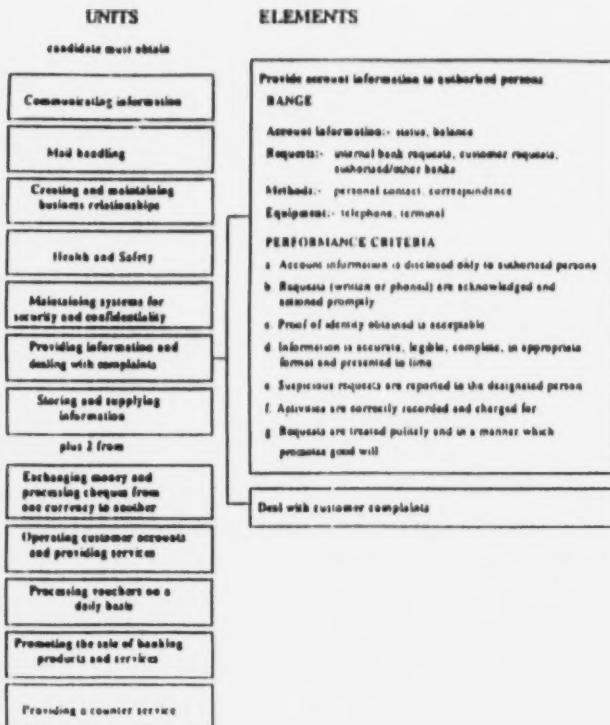
The concept of range as a dimension of competence was introduced in response to problems that emerged in the early stages of the UK occupational standards programme in identifying accurately the amount of evidence required to infer transferability across a range of contexts and the exact nature of the underpinning knowledge required. Such problems reflected the limitations of employing "vertical" disaggregation as the only analytical approach and indicated a need for the inclusion of a "horizontal" dimension in the definition of standards.

UK experience indicates that, although additional components may be included in the descriptors of occupational competence to meet additional information needs, it is not possible to specify performance with the required degree of precision unless each of the above components is included.

For standards to be adequate to reflect acceptable performance in terms of a whole work role rather than a disaggregated set of tasks, an approach commonly known as the Job Competence Model has evolved in which performance is judged to encompass four important dimensions, which should be embedded firmly in the standards:

- tasks, or aspects of a work role that lead to identified tangible outcomes;

**EXAMPLE: NVQ STATEMENT OF COMPETENCE
BANKING SERVICES, LEVEL 2**



**EXAMPLE: NVQ STATEMENT OF COMPETENCE
INSTALLING AND COMMISSIONING
TELECOMMUNICATIONS TERMINAL
EQUIPMENT, LEVEL 2**

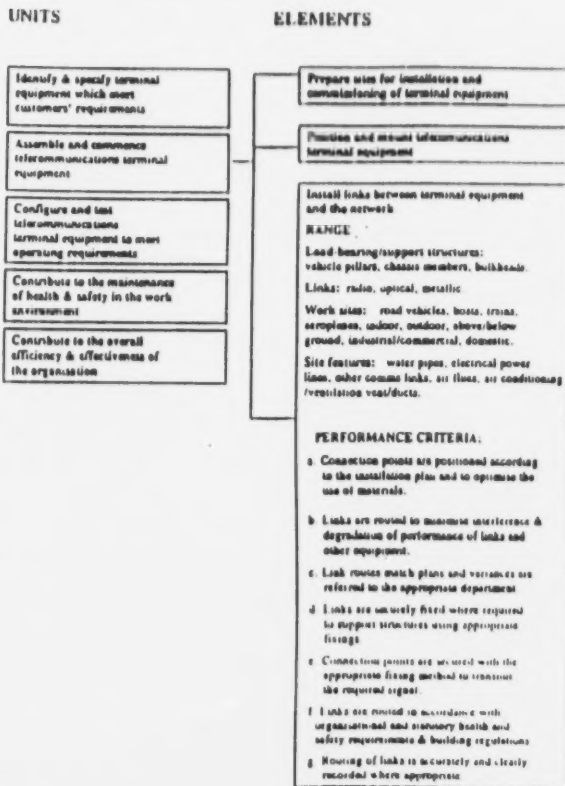


Figure 3. Examples from NVQ Statements of Competence-Banking Level 2 and Telecommunications Level 2

Sources: Banking Lead Body and Telecommunications Vocational Standards Council respectively

- contingency management - the need to deal with things that go wrong or the unexpected;
- task management - the skills involved in planning and managing the whole work role;
- role/job environment - working within both the physical and the interpersonal / interactive environment.

ASSESSMENT AND QUALITY ASSURANCE

The starting point for the design of most traditional qualifications was the assumption of a particular kind of assessment, most commonly a written examination, project, assignment or skill test - the curriculum followed and what could be assessed being inevitably subject to the limitations of the assessment regime.

In contrast, NVQs are designed against explicit outcomes. Valid and reliable assessments have to be devised to enable the specified outcomes to be assessed. Under the NVQ system, performance has to be demonstrated under conditions as close as possible to those under which it would be practised in employment - preferably in the workplace. It is argued that NVQs are therefore frequently much more demanding than the traditional qualifications that they replaced.

The NVQ concept of assessment is that it is the gathering of evidence of

an individual's ability to achieve the outcomes described in the Statement of Competence. It tends to be a continuous process, taking advantage of all opportunities for candidates to demonstrate evidence of performance and knowledge. Because the system is transparent, both candidates and their assessors should know exactly what is required.

The assessment system is thus driven by the standards, from which are derived specifications of both the forms and quantity of evidence required and judgements made about the most suitable ways of gathering the evidence identified. Such specifications should be sufficiently detailed to ensure that there is enough evidence to infer confidently and justifiably that a candidate is fully competent across the complete range covered in the standards, to the extent that all doubts are resolved.

The principal difficulty faced by those involved in developing evidence specifications is how to achieve a balance between the needs for absolute uniformity of standards and flexibility in assessment. It has been suggested that a "minimalist" approach should be adopted, concentrating on such factors as what it is absolutely essential to assess, the minimum amount of evidence deemed satisfactory, the contexts that should be examined and any constraints on the types of evidence that might be collected. In particular it is important to identify such issues as the degree of consistency required, the acceptable balance between perfor-

mance and knowledge and any "negative" evidence that would indicate that a person is not yet competent.

In practice a diverse range of assessment modes are employed. Typically the evidence for any unit will be gathered through several assessment modes, which may include workplace observation, competence/skill tests, assignments/projects, oral questioning, multiple choice questions, questions requiring written answers (including essays) and computer based tests. Assessments are commonly internally set

(i.e., within the local assessment centre) but they sometimes are externally set by the awarding bodies. Evidence of prior achievement may be taken into account.

Assessment for NVQs takes place within local centres approved by and operating under the external quality control of awarding bodies whose assessment and quality assurance are themselves approved systems by NCVQ. Centres may be colleges of further education, training organisations, employers or, as we develop NVQs at the higher levels, universities.

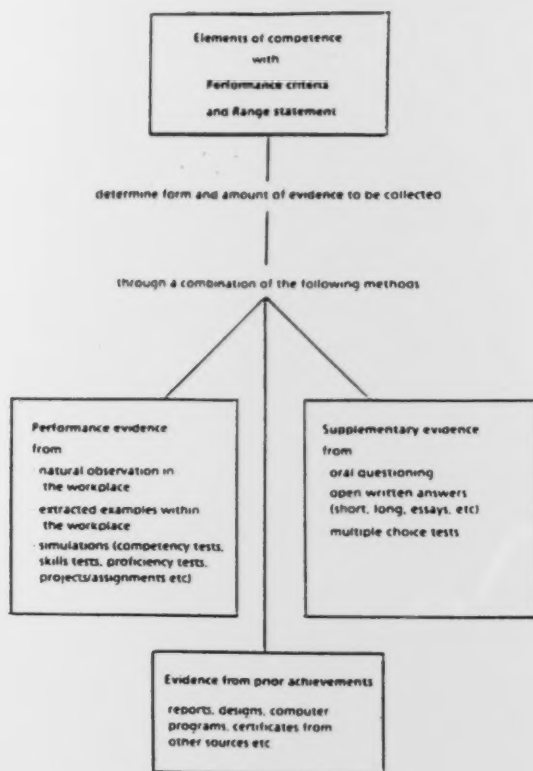


Figure 4. - NVQ Assessment model

The essential components of the model of assessment and verification operated by awarding bodies within the NVQ system are:

- assessment by competent and qualified first and second line assessors, judging whether the evidence presented by candidates is sufficient to indicate all the aspects of competence described in the elements of competence, performance
- criteria and range;
- internal verification, carried out within the centre to ensure consistency between assessors within the centre; and
- external verification carried out by the awarding body through visits to centres to ensure consistency of standards nationally and the integrity of the system.

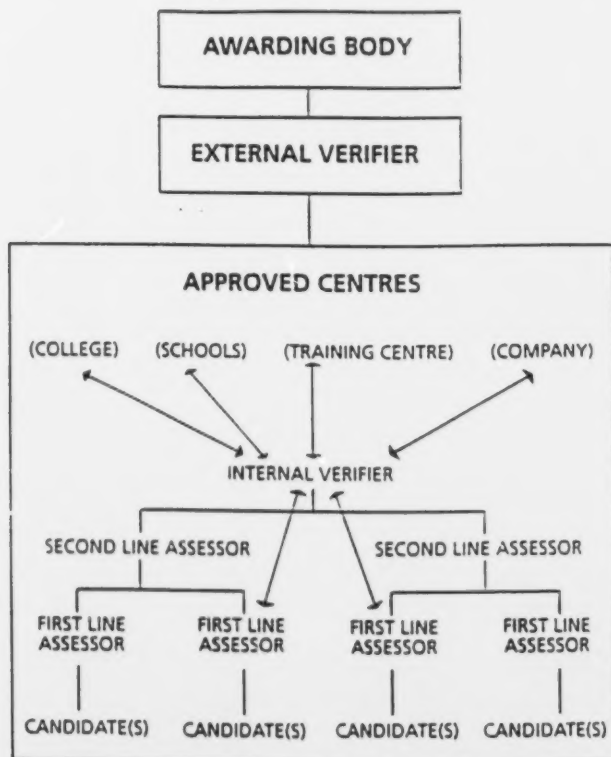


Figure 5. - Model of Assessment and Verification Centre Functions

Reprinted from "National Standards for Assessment and Verification", NCVQ 1991

MODULARIZATION, CREDIT ACCUMULATION AND ACTION PLANNING

Because NVQs are unit-based the concept of credit accumulation is inherent within the system. Additionally, because some of the units that contribute to NVQs will be generic and common to a number of NVQs, there is also a strong emphasis on credit transfer between NVQs. Because the NVQ approach to assessment explicitly recognises that evidence of prior achievement, either of performance or of knowledge, can be taken into account, there is further scope for transfer, particularly where there is some commonality in the evidence required for the achievement of different units.

The emphasis on outcomes within the NVQ system encourages both the development of modular forms of learning, and increased flexibility, accessibility and diversity of learning delivery. It provides both the opportunity and the encouragement for more and more people to enter and continue learning. Unit credits and modular programmes open up access to learning, provide flexibility and promote continuing learning as a natural part of working life. This is considered essential to NCVQ's goal of life-long learning for all.

The NVQ approach assumes that all forms of learning are more effective and efficient if the learning outcomes are clearly stated in advance and both

learning and assessment are based on the defined outcomes. This has significant implications for both individuals and those responsible for their education, training and development. It is argued that because what is required for award of qualifications is explicit, individuals are empowered to take greater responsibility for managing their own learning. This contrasts with the high degree of dependence on delivery providers which is common in more traditional qualifications systems. An emphasis on personal action planning is implicit in the NVQ system.

All NVQs, GNVQs and units are contained within a National Database of Vocational Qualifications. By accessing the database through either complete qualifications or units or via occupational, industry or subject classifications, it is intended that individuals and their advisers can identify precisely what learning they require and what they need to demonstrate to accumulate unit credits towards qualifications.

Together with the national database there is a National Record of Achievement which provides a national recording system for all qualifications and unit credits towards qualifications. The National Record is both a summative record of past achievement and an action planning tool which helps individuals to choose their destinations and routes to learning and qualifications at all stages in their career and personal development.

IMPLICATIONS FOR THE DELIVERY OF VOCATIONAL EDUCATION AND TRAINING

The implications of this emphasis on learning outcomes has enormous implications for the delivery of education and training. It is clear that, in the NVQ system, all forms of learning whether on the job or off the job, in school or college, or through work-based training schemes, open and distance learning, directed self-learning, or experiential learning in the workplace - can lead to the desired outcomes. Through the adoption of national standards, maximum diversity of learning provision is encouraged because there is no longer the same degree of concern with how people learn - it is the outcomes not the learning process which are important.

In the UK national standards have provided a key to the decentralisation of curriculum design and delivery systems and are encouraging innovation at local level, while at the same time guaranteeing national consistency of quality. Such changes are leading to a redefinition of the roles of institutions involved in the provision of learning, and of teachers, trainers, and learners themselves. Most of the education and training towards NVQs, however, is still being provided to the traditional client groups - young people in employer or government-sponsored training programmes and the unemployed. It is clear that life-long learning will require not only a more widespread and general

availability of NVQs at work, but also the creation of a strong individual market for NVQs.

The potential for life-long learning implicit in the NVQ system carries with it the implication of a huge potential demand. The increased availability of more flexible and modular learning programmes will make it very much easier for people to access the learning that they require. This is going to take a huge investment not only in the financing of education and training and the reform of delivery systems but also in the development of the information and guidance systems required to support that process.

The urgent need of Britain's economy for the implementation of NVQs and for the objective of life-long learning to be made a reality are reflected in highly ambitious targets for education and training which were initially proposed by the employers' federation, the Confederation of British Industry. The targets, which include both foundation targets for young people and life-long learning targets for adults, have been accepted by the government and are also supported by the Trades Union Congress.

If the targets for young people are met, by 1997 80% of young people should be reaching NVQ Level 2 (or its GNVQ or academic equivalents) with training and education to NVQ Level 3 available to all who can benefit. By 2000, 50% of young people should be reaching NVQ Level 3 (or its GNVQ /

academic equivalents). In practice, it is likely that the broad based GNVQ foundation qualification at Level 3 will be the key to meeting this target, as it is difficult to envisage supervisory qualifications at Level 3 being delivered through programmes of initial vocational training.

The life-long learning targets look forward to all employees taking part in training and development activities and 50% of the work-force aiming for NVQs or units towards them by 1996. By 2000, 50% of employees should be qualified to NVQ Level 3 (or its GNVQ or academic equivalent). An indication of the magnitude of the investment required is that reaching the 1996 target will require a 16% annual increase in the amount of training provided at work.

Achieving the creation of a new culture of life-long learning will clearly require huge changes of attitudes, and while there is evidence that the influential support of employer and trade union organisations have already made a substantial contribution to creating a climate for change, the UK is still some way from meeting its declared goal. The qualifications system and the VET infrastructure required for such far-reaching change, however, are now largely in place.

By the end of this century, the qualifications revolution in the United Kingdom will have produced a completely new type of vocational education and training system that is intended to

provide world class standards of performance, through the means of the outcomes approach and modularization. The very considerable achievement so far confirms NCVQ's position in the forefront of innovation in the development of new approaches to qualifications intended to meet the needs of the twenty first century.

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VOCATIONAL EDUCATION AND TRAINING IN SCOTLAND

Jim Seddon

The competence based, vocational certification system SVQ (Scottish Vocational Qualification) and the organisations for it are described and commented in respect to British NVQ system. The occupational skills are certificated in SVQs, and the five core skills are the mandatory elements for General SVQs, which serve for studying skills, higher certificates or a way to higher education. The recording of achievement, accreditation of prior learning and quality assurance are discussed and presented. Descriptors: Vocational education; assessments of vocational skills, SVQs, competence based education.

In Scotland there has been some considerable autonomy within the educational system over the centuries and a development which, although acknowledging many parallels with the rest of the UK, retains a distinctive Scottish flavour.

Overall responsibility for education in Scotland rests with the Scottish Office Education Department (SOED.) reporting to the Secretary of State for Scotland. The SOED is responsible for:

- the legislative framework for schools and Further Education Colleges;
- general education policy;
- financial support;
- approval of major capital projects;

- administration of funds for special schemes.

Within this framework the Scottish Vocational Education Council (SCOTVEC) is responsible for vocational certification and assessment of non-advanced vocational education.

BACKGROUND TO THE SCOTTISH SYSTEM

In the 1960's Vocational Training was the province of a number of institutions. The apprentice system worked mainly through day-release and the Further Education College (FE). Courses mainly led to qualifications with certification by awarding bodies such as the Scottish Business Educa-

tion Council (SCOTBEC) and the Scottish Technical Education Council (SCOTEC). In the 1970's the apprenticeship system declined and different systems of work training were developed by the Manpower Services Commission (M.S.C.). By the mid 1970's the number of school leavers attending full-time courses in the FE Colleges had grown considerably. These courses were adaptations of the part-time courses and occupationally specific courses. The FE Colleges also developed courses leading to advanced vocational qualifications such as Higher National Certificates (HNC) and Higher National Diplomas (HND) awarded by SCOTBEC and SCOTEC.

In the late 1970's and 1980's a number of reports focused on concern over the perceived failure of post 16 education and training in Scotland to meet the needs of the economy and to make a case for reform (SED 1979) (SED 1983).

The major factors identified were:

- lack of articulation and flexibility in the training and education systems;
- low participation rates;
- the need to improve methods of teaching and assessment.

In 1981 the percentage of 16-18 year olds participating in education was down to 60% (including people on youth opportunities programmes). Only 50% of the UK population had a certificate

at basic level or better.

At this time courses offered a restricted choice to students and it was difficult to gain access to components of courses. There was very limited articulation and credit transfer between schools and FE Colleges and between different FE examining bodies. Very limited provision existed for adults to take short courses for skills update or continued development. The 16-18 Action Plan (SED 1983) made the following proposals.

- To encourage greater participation in further and higher education.
- To create a more comprehensible system based on a single national certificate.
- To encourage efficiency in the organisation of provision.
- To develop a more relevant and responsive curriculum which met the needs of employers and the needs of individual students.
- To improve the integration and flexibility of the education and training system so as to encourage improved access, credit transfer, progression and choice.
- To encourage more active, practical and student-centred approaches to learning and teaching.
- To introduce a system which assessed student performance on the basis of learning outcomes and performance criteria to prescribed national standards.

National Certificate courses were to be based on modules and modular pro-

grammes. This would give flexibility, facilitate articulation and avoid duplication. The National Certificate was to be awarded by the Scottish Vocational Education Council (SCOTVEC), a body created by the amalgamation of the Scottish Technical Education Council and the Scottish Business Education Council. The single body was to oversee and control the development of all modules covering all non-advanced vocational requirements in Scotland.

Since 1983 development and refinement of National Certificates has continued. Many modules, however, were found to have learning outcomes which were neither employer-led nor related to occupational competence. SCOTVEC reviewed the situation and after wide consultation in 1987 the following features were introduced.

- Adoption of a competence-based system.
- Courses built up from discrete units.
- Criterion referenced assessment of units (with a merit option).
- Devolved responsibility to colleges for curriculum development and assessment.
- Introduction of external course assessors.
- A major emphasis on student centred learning.
- Comprehensive validation procedures for each college.

THE PRESENT STRUCTURE

In 1990 SCOTVEC adopted a system of grouping awards to recognise achievement of specified groups of modules. These awards have the title Scottish Vocational Qualifications (SVQ) (National Vocational Qualifications in the rest of the UK are mutually recognised).

SVQs are nationally recognised awards and all are built up from free standing modules, each of which brings together a group of occupationally related skills. They are designed to:

- respond to current and future industrial, commercial, technological and market requirements;
- be assessed in conditions of the workplace;
- be available to people of all ages;
- encourage people to progress from one level to another, to continue learning and training throughout life.

These SVQs can be made up of, or aggregates of:

- National Certificate modules;
- Higher National Certificate Units;
- Workplace Assessed Units.

The number of units per SVQ is not predetermined and varies between SVQs. The vast majority of SVQs are built up from National Certificate modules of which there are over 3,000

available in a wide range of subjects.

It is SCOTVEC's policy to encourage the development of generic units, which are common to a number of SVQ's.

To assist employers and individuals in planning career development, SVQ's are classified within a levels framework agreed jointly by SCOTVEC and NCVQ. The framework clearly shows how one qualification in an occupational sector relates to another which makes it easier for employers and employees to chart progress to date and to map out future career routes. The SCOTVEC Levels Framework currently consists of five tiers:

Level I indicates competence in the performance of a range of varied work activities, most of which may be routine and predictable.

Level II concerns competence in a significant range of varied work activities, performed in a variety of contexts. Some of the activities are complex or non-routine and there is some individual responsibility or autonomy. Collaboration with others, perhaps through membership of a work group or team, may often be a requirement.

Level III requires competence in a broad range of varied work activities performed in a wide variety of contexts and most of which are complex non-routine. There is considerable responsibility and autonomy, and control or

guidance of others is often required.

Level IV involves competence in a broad range of complex, technical, or professional work activities performed in a wide variety of contexts and with substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources is often present.

Level V attests to competence which involves the application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources feature strongly, as do personal accountabilities for analysis and diagnosis, design, planning, execution and evaluation.

SVQs are also categorised by areas of competence making it is easy to establish all available SVQs in a given occupational area. Again, these areas of competence correspond to those elsewhere in the United Kingdom and have been jointly agreed by SCOTVEC, NCVQ and TEED, thus ensuring that SVQs and NVQs are fully compatible.

SCOTVEC's National Certificate modular system has abandoned single grades. A clear statement of what has been achieved in each module is given by mastery/non-mastery of specific learning outcomes. The problem

remains however that there is no indication, with this system as to if students have 'mastered' some modules better than others, or indeed better than other students. A student is competent or not competent with no in between level possible.

According to Fennell (Employment Department Training Agency 1990), "Good assessment reflects the aims of courses and units and enhances the quality of teaching without dominating or distorting them."

The situation of the free standing modules has an emphasis in the output side in contrast to earlier education led courses with the emphasis on teaching input. Modules are developed using the design principles of occupational competence.

A key source of information on the details of Scottish Vocational Qualifications is provided by SAMI - a database compiled by the Curriculum Advice and Support Team (CAST), Scottish School of Further Education, Jordanhill Campus. The database provides up-to-the-minute information on SVQ's and is available on disc.

LEAD BODIES

The Employment Department's Training Enterprise and Education Directorate (EDTEED) designated lead bodies for each occupational area. Lead bodies are UK wide bodies which are recognised by a commercial or other

identified sector of employment. In 1991 there were about 180 lead bodies. These lead bodies take responsibility for developing occupational competencies and assessment procedures which are incorporated in vocational qualifications. In Scotland a SCOTVEC officer sits on each lead body and has the responsibility to oversee any proposals for SVQs. This officer works with the lead body to develop qualifications which are acceptable to Scottish Industry. The Process involves recognising national standards for each area of employment and locating required qualifications at the appropriate place within the SVQ system. The establishment of lead bodies has shifted the emphasis to developing and identifying the essential outcomes of learning in the form of competencies. This is a major shift from the traditional system which involved employers as advisors but had educationalists in the prime role. Educationalist's emphasis always tended to be with the teaching input, and thus the quality of learning resulting from the input. The concept of lead bodies places the employers in the prime position and thus the emphasis on the output side, on competencies which are the key feature of work performance.

GENERAL SVQS

In 1992 the General SVQ (GSVQ) was introduced. This qualification is

specially designed for:

- 16 - 19 year olds in further education or school;
- adult returners.

Again this qualification was developed in consultation with industry and education and aims to equip pupils to enter a broad range of occupations or to continue into higher education.

Unlike occupational specific SVQs, GSVQs are not designed as statements of competencies as defined by lead bodies, but focus on skills, knowledge and understanding that underpin a range of GSVQs within a broad occupational area. The outcome to be achieved can therefore be developed and assessed in colleges and schools.

General SVQs lead to a wide range of employment opportunities and also into higher education. General SVQs incorporate core skills, the basic adaptable skills which have universal applications and five core skills at different levels, are a compulsory part of each General SVQ.

CORE SKILLS

Core skills are a mandatory element of general SVQs and cover the following five areas:

Personal and interpersonal skills

The ability to work independently and

co-operatively with others and to use self-awareness and social awareness to guide them.

Communication

The ability to write and talk appropriately for a particular purpose and audience.

Numeracy

The ability to use a range of arithmetical and basic statistical techniques to reach conclusions in practical situations.

Problem Solving

The ability to identify and evaluate problems and to devise approaches to address them.

Information Technology

The ability to use computers to sort, process and retrieve information and to present information.

All general SVQs at Level I to III contain all five core skills, at least at Stage I, as mandatory elements.

Proficiency in a second language is not an SVQ requirement nor a core skill at the present time. SCOTVEC already has a well-developed series of language modules and these have been incorporated into some general SVQs as optional elements. This language

requirement is being looked at by a language lead body.

Modules are certificated and are free standing. Modules can be used in groups for SVQ. areas and modules can be clustered in subject areas, for example to form a session's work as a school option, modules are used for:

- entry to employment;
- progression to H.N.C.;
- progression to higher education;
- retraining and refresher courses.

Learning methods vary. They can be part-time or full-time. Modules can take place in an FE College, a school, a training organisation or any combination of these. There are no time limits to complete an SVQ. Credit is given for all units completed (modules and units which are common to other awards are automatically credited).

There has been a considerable increase in the number of pupils in Schools enroled for National Certificate modules.

Year No. of Module Enrolments

1985 - 1986	34,600
1987 - 1988	110,600
1989 - 1990	277,300

(S.O.E.D. 1990)

Schools have found the module Short Courses to be of considerable advantage and the span of National Certificate modules is such that the range covers from pupils with mild learning difficulties right up to modules

of equivalent to Highers.

Most Scottish Schools now have good articulation between modules and Higher Courses, (Weir and Kydd 1991) and an appropriate selection of vocational modules, often delivered in collaboration with a local FE College. Pupils can thus gain credit for Short Courses in Work preparation and Universities are now starting to accept groups of modules as equivalent to Highers, and thus allow access to Higher Education.

RECORDING ACHIEVEMENT

An important feature of the Scottish system is that a cohesive record of achievement is made possible by the provision of the Record of Education and Training (RET). This is a SCOTVEC record and shows each module and thus a cumulative record of success of the student. This is a valued and essential feature of the system in Scotland. One body (SCOTVEC) is responsible and ensures that each and every module is separately accredited and that they are collectively recorded on a single record (RET) which shows:

- all SCOTVEC units;
- group award statement(s);
- any other recognition of achievement by industry, commerce, etc.

This single RET stays with the person throughout their career.

SCOTVEC normally awards SVQ either alone or in partnership. In a few cases other organisations may be allowed this function.

SKILLSTART

Occupational and general SVQs form two interlinking parts of an integrated system of vocational qualifications. Two preliminary awards are now also available, National Certificate Skillstart I and II and these awards allow students to progress to SVQs. This means that the SVQ system is opened up to slower learners and those without formal qualifications.

ACCREDITATION OF PRIOR LEARNING (APL)

Individuals learn throughout their lives, they do not come to a module as

a blank sheet but bring with them their previous experiences and learning. This is particularly true of adults and if the modular system is to be flexible it needs to take account of peoples' prior learning. The process involves the candidate working with an advisor to produce a portfolio of evidence of appropriate previous experience. If the evidence of achievement is sufficient to cover the overtaking of 'outcomes' the candidate is 'credited' with these 'outcomes'. As National Certificate modules are stated in 'competence' terms they allow for this matching against prior learning. This structure provides a new focus on student centred learning and the opportunities to tailor courses to individual needs. The candidate can take into account a wide range of experiences, for example, past work experience, leisure pursuits (for instance being the secretary of a local club), Training Courses, etc. The Process works as follows:

- | | | | |
|----|---|---|--------------------------|
| 1. | Profiling candidate's previous learning |) | |
| 2. | Match to SCOTVEC Modules |) |) Advisor |
| 3. | Present Portfolio |) | eg. Letter of validation |
| | |) | Samples of Work |
| | |) | Photographs |
| | |) | Certificates |
| | |) | etc. |
| 4. | Assessing Claim | - | Assessor |
| 5. | SCOTVEC Accreditation | - | SCOTVEC |

This system is designed for Mature Students and is a particularly valued feature especially encouraging Adult returners back into education and training. There is high motivation for people in not having to start again from the very beginning but can have their previous learning experience taken into account.

QUALITY ASSURANCE

SCOTVEC. retains overall responsibility for quality assurance and ensures that the systems are operating effectively through a Quality System Review (Q.S.R.).

Internal verifications are carried out to ensure that the same standards are applied when assessing candidates through samples of work and by observation. External verification ensures that national standards are maintained.

SCOTVEC monitors the awarding bodies' quality assurance procedures, including approval, internal verification, external verification and administration.

Scotland, unlike the rest of the UK, has a unitary system with SCOTVEC, the single accrediting and awarding body for vocational education and training. Scotland has a separate Scottish Office Education Department, autonomous University system, self governing FE Colleges and L.E.C.s (Local Enterprise bodies) which have a dual vocational and technical education

role and economic and business growth function. FE Colleges are now more employer led and market oriented and this will, no doubt, increase with their new self-governing status.

Although it is very early days for the new SVQ system it is hoped that it will:

- raise the esteem of occupational training and education in Scotland. It is hoped this will be especially true in school where it will help to break down the academic/vocational wall. It will also enable students to move on into higher education on the basis of GSVQs;
- enable employers to recruit from a more broadly educated and vocationally aware group of young people;
- ensure that through GSVQs more attention is placed on core skills and preparation for a working life.

COMMENTS

My comments and my perspective at this workshop is from a different standpoint to that of the other contributing experts. My background is that of an academic and not an officer or an administrator of one of the validating organisations. Whilst this situation obviously has its down side I believe it was both a useful and healthy perspective for the workshop.

Instead of being an advocate of the Scottish Vocational Educational System I had a number of areas of reservations and concern. Instead of being an eva-

lualist for the system I came on the scene with a great deal of scepticism, which have largely been answered, but which I feel it would be useful to share with you.

Firstly, it appeared to me that the system as presented by SCOTVEC represented bureaucracy. The complexity of the system at first acquaintanceship suggests a rigid and mechanistic structure. However, on further acquaintanceship with the system it shows itself to have much to commend it in terms of clarity and logic and in fact in flexibility. It is clear for both users, administrators and delivers in terms of knowing how the system operates, what the objectives are and how it is organised. It is a system which enabled purpose and quality to be controlled and ensured.

Secondly, I was concerned that a competence based system could result in minimalism. I was concerned that this might result in a diminished view of education and a view of people as functionaries rather than human beings to be developed. At first my anxieties were enhanced by observation of students with checklists of performance criteria who were in a sense ticking off jobs to be done. However, further experience made me realise that I was in fact seeing examples of bad practice, but it did point out the danger that the system can be misused in this way. Well developed modules displayed broad and cognitively expansive competencies which also had relevance and

transferability.

Thirdly, I was concerned for the development of creative thinking. However, again this is allowed for in the system and depends on the sensitivity, care and thought which is put into the design of competencies.

I had concerns with the system which appeared to be work driven. But in fact it is very much about the needs of re-skilling people and about the needs to raise the status of vocational education. I saw in the system the value of partnership between educationalists, employers and employees. Embedded in a cost effective system it is relevant to today's labour needs without forgetting the central importance of the development of the individual.

Here in Scotland we have seen a changing need for skills development to meet a changing pattern of employment. Over the past decade we have lost our steel making industry, our car manufacturing, and only a shadow of our former shipbuilding capacity remains. The Service Sector and electronics have grown but the major growth has been in unemployment. For many older people, and for the majority of adults the priority is to reskill to meet the changing labour market. The methods of this retraining are important which is why the SVQ system is so important, it is modular, it is based on a wide variety of methods of delivery, allows for accreditation of prior learning and allows for the individuals

to proceed at their own pace.

The needs of young people for which the general SVQs were developed are different. A primary need here was to break down the status barrier between vocational and academic education. The system developed through general SVQs sets out to raise the status of vocational pathways for young people without locking them in too early. It was important here that young people could move between areas and were still able to enter higher education or the world of work at an appropriate time. Considerable headway has been made in convincing the Universities to see appropriate groupings of SVQs as an equivalent for entry into Degree level studies as the traditional Highers in Scotland. Certain recognised modules also give entry to advanced Certificate and Diploma courses which are used by employers recruiting for jobs. Young students are now encouraged to select a programme mixing academic highers and national certificate modules.

Vocational education, full-time in Colleges, in training schemes, or release from work now provide clear pathway to higher education in some areas. For adult returners modules have been used to give entry to higher education courses (particularly women).

Occupational competencies are concerned with the ability to perform in employment and SVQs are statements of competence developed by industrial bodies and expressed in terms of

performances requirements. The forms of assessment emphasize the need for performance demonstration to provide evidence of competence, that people have the 'ability' to perform work activities to the standards required in employment. This issue of competence is addressed in the paper presented by David Handley at this workshop. As SVQ's are covered by National Standards they are applicable across different situations and organisations. They provide flexibility and transferability across occupations and organisations. The emphasis has been moved from a major concern with input to that of output.

The important feature of the Scottish System as against the rest of the UK is the existence of one central certification council, thus simplified and clarifying the SVQ system. This also much simplifies the maintenance of a record of achievement for each individual student with the system. However, it is possible to take NVQs in Scotland and some organisations award NVQ's qualifications, particularly large firms with UK wide or multi-national activities. Therefore it is not in the true sense correct to say that SCOTVEC is a single monopolistic organisation.

There are also differences in the core skills identified and mandatory for general SVQs as against general NVQs.

Whilst there is a sense of Scottish pride in developing a unified system there is also realism about the prob-

lems that still remain.

One area to be addressed is with general SVQs. These are often developed in collaboration with local FE Colleges. These FE Colleges are now independent and schools will need to build on a new relationship of cooperation and collaboration. The problems may be compounded by the problems of staff deployment between schools and colleges. Another problem in this area for Scotland is the geography, perhaps also for Finland. Comprehensive provision of general SVQs in remote areas may cause problems. In these areas many schools are very remote from FE Colleges.

There are proposed changes imminent in upper secondary education through proposals of the Howie Committee. Decisions have not yet been taken but one suggestion is the merger of the Scottish Examinations Board and SCOTVEC.

The recommendation is a twin track system. The Scottish Certificate (SCOTCERT) a one year programme leading to the award of SCOTCERT 1, or 2 years for SCOTCERT 2 based on broad occupational sectors, and the Scottish Baccalaureates (SCOTBAC) a three year academic programme to replace Highers, SCOTCERT and GSVQs, could then be amalgamated thus giving the vocational education path a stronger educational element.

The Howie Committee report recommendations are still under consideration and discussion. The Committee's

proposals would raise the status of vocational education in Scotland and it advocates strengthening its elements of general and vocational education for all young people.

The key debate is whether the two track solution of SCOTCERT and SCOTBAC is the right one or does it still continue its vocational -academic divide. Others argue that the Howie proposals build on good practice and allow for scope for the academic and vocational to grow together.

SCOTVEC and NCVQ are also making progress on the development of Higher (level 5 and above) level modules for professional qualifications.

NCVQ and the other UK bodies appear to be dealing with the peculiarly English problems caused by the size and complexity of that country as against Scotland. Whether it would be possible or desirable for the rest of the UK to develop one unified body is doubtful but for the sake of UK coherence there is, I feel, a need for even closer cooperation and development. Many organisations are UK wide, indeed this is reflected in the lead bodies. Scotland has however its own distinctive and rich educational traditions. There is, nonetheless, a realism about the size of the task remaining here.

I will end with a note of caution. There is, I believe, an ever present danger in vocational education and we must not put work before people.

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QUALIFICATION, COMPETENCE AND CERTIFICATION IN THE MODULAR VOCATIONAL EDUCATION IN THE NETHERLANDS

C. Wim Streumer

The modular structure of vocational training is a part of national "Apprenticeship system Development Plan" innovation programmes in the Netherlands. The project has been going on since early 80's. In the beginning the new structure was expected to solve all kinds of problems, and from the middle of 80's the modularization question turned to be less ideological and more practical by nature. The major problems concerned in the lack of materials and of trained teachers, and teachers with negative attitudes towards innovations. Descriptors: Vocational education, assessment, examinations, competence, qualifications.

QUALIFICATION

The relation between individuals and their situational environment

Before taking a closer look at the way in which vocational education and training in the Netherlands is organized, we would like to give a short explanation of the central notion of Qualification.

Within the total process of trying to gear vocational training better to the actual activities in professional practice, qualification structures are being developed in the Netherlands on a large scale. This development will eventually have to provide the

branches of industry with insight into the way in which the various forms of vocational training interconnect.

The notion of qualification is used many times and in many ways. However, it is generally accepted that qualification is a relation notion. This means that qualification should be defined in the relation between individuals and their situational environment. Individuals become capable of acting in proportion to the degree in which they are capable of handling, shaping and controlling their situation. We speak of qualifications whenever this capability to act has reached a certain maturity and relates

to specific situations.

Within the scope of the present developments in the Netherlands, qualifications are formulated in goals of qualification.

Goals of qualification describe the skills that students should possess at the end of their training. They concern psycho-motor skills, cognitive skills as well as reactive and interactive skills.

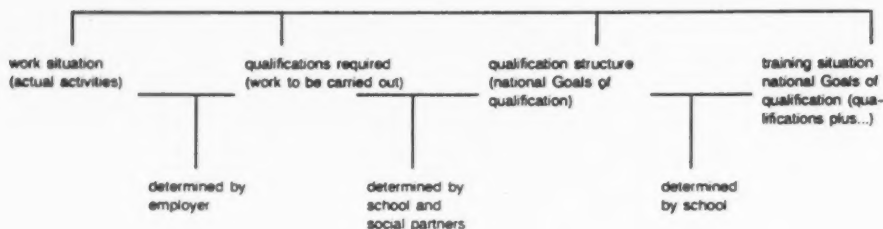
A training objective is formulated by using the following standardized structure and type of command:

The candidate should (degree of independence) be able to (function described in terms of observable behaviour) (if

appropriate;) (using the following equipment or data).

In particular within the context of labour market and qualification research, the notion of qualification is limited to the performance potential that is required for coping with work or professional situations.

Nevertheless, qualifications are always personal. With our characterization of qualifications as a personal feature, we turn against the suggestion that qualifications should be regarded as features of tasks. Qualifications cannot be defined separately from people, in this case workers who perform tasks.



Required qualifications are demands that are directly derived from the work to be carried out and that are concretely formulated.

In the Dutch situation, in particular the social partners are the parties responsible for stipulating which required qualifications training should be aimed at. These qualifications are directly derived from the actual activities in professional practice. The qualification is formulated in the "goals of qualification". Next the social partners together with the school representatives are responsible for drawing up the qualification structures. After that, the training organisation is responsible for providing training that in the end will at least meet the demands which were put in the qualification structure that was determined on a national scale.

The following contains a detailed discussion of this model of responsibilities and the procedures involved.

QUALIFICATION AND COMPETENCE

The notion of qualification in particular lends itself for making a link between education and work, both with respect to contents and the process involved. Both the demand and supply on the labour market as function requirements and the present labour forces in work situations can be defined in terms of qualification. The notion of

competence is closely related to qualification. However, they are derived from different theoretical and social contexts. Qualification is derived from labour market and qualification research, which is strongly dominated by the German tradition. Competence mainly comes from the educational and cognitive psychology oriented competence and performance theories and is strongly dominated by Anglo-Saxon traditions. The relationship between the two notions becomes apparent from the fact that more than once they are used indiscriminately, albeit sometimes with different connotations.

Competence comes very close to potential: something that is unique to each individual, that is difficult to grasp and shows a continuous development in various spheres of life.

In other words, competence is a more abstract notion than qualification. Qualification refers to the concrete performance of activities; competence refers to the regulation of these activities. In the case of competencies, we are more concerned with structures of thought, interpretation schemes and action patterns than with certain skills or knowledge elements that are to be isolated.

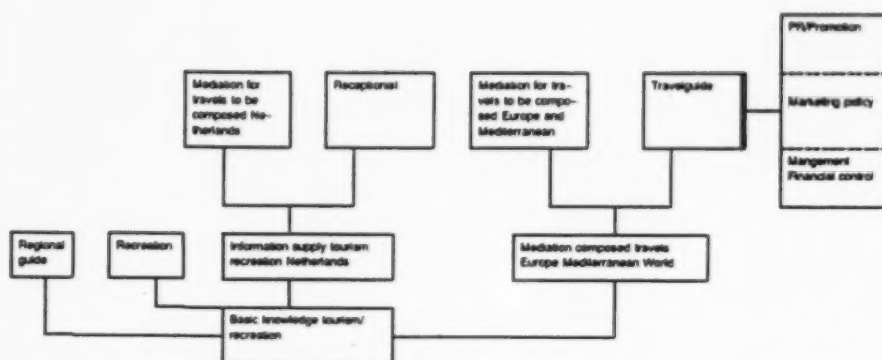
In the following illustrative example, we would like to indicate what a qualification structure may look like.

AN EXAMPLE OF A QUALIFICATION STRUCTURE

In this case the qualification structure consists of twenty certificate units (CU). In principle, a certificate unit equals a partial qualification; to the

industry such a certificate unit forms an identifiable and nameable function. A certificate unit consist of a number of "goals of qualification".

This qualification structure contains all training for the tourism-recreation branch.



The qualification structure should be interpreted from the bottom upwards. The lines between the certificate units indicate the required intake level of the certificate units.

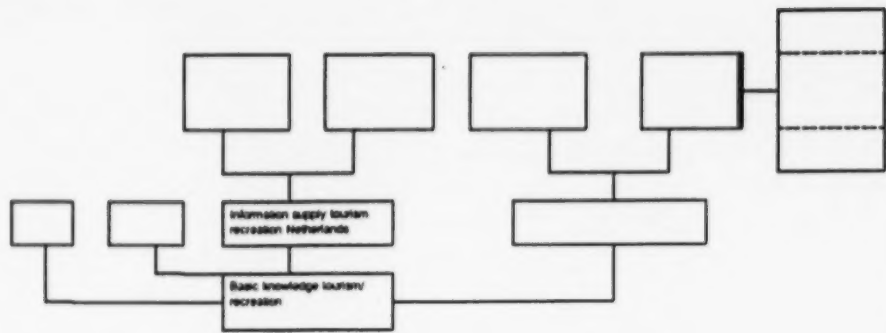
The various vocational training profiles can be placed within the qualification structure. Below you see a number of vocational training profiles pictured within the total qualification structure.

An example of a vocational training profile

The first vocational training profile is "information supply assistant", and it concerns a Tourist Information Office assistant. This training is derived from two vocational profiles, namely 201 and 203. The qualification level, which has to be limited, corresponds to the objectives of two certificate units:

- C.U. bk basic knowledge tourism/recreation
- C.U. nl form supply tourism/recreation Netherlands

Vocational profile number 201-203
Vocational training profile 1: information supply assistant
(Information profiles)



The second example concerns the vocational training profile "Staff member travel" mediation. This is a high-level travel agency function.

The training consists of three certificate units:

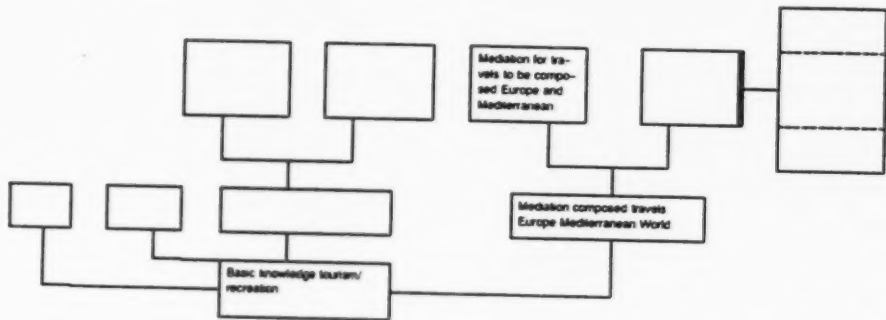
- C.U. bk basic knowledge tourism/rec

reation

- C.U. pr mediation composed travels Europe, Mediterranean, world
- C.U. sr mediation travels to be composed Europe and Mediterranean

This concerns a training of about four years.

Vocational profile number 306-307
Vocational training profile 6: staff member travel mediation
(Travel agency/company profiles)



The next part of this presentation contains a detailed description of the total development process from vocational profiles to qualification descriptions in the form of Goals of qualification.

FROM VOCATIONAL PROFILE TO VOCATIONAL TRAINING PROFILE

In describing this complicated development process I have left out the details, so that what remains is just an outline. It takes six steps to move from a

vocational profile to a vocational training (course) profile.

Once this six-step procedure has been completed, educationists are able to specify the skills, attitudes and knowledge that trainees must have by the end of the course. The expertise of teachers and of people practising the profession in question is indispensable in this process.

The object of the whole exercise is to create a balanced vocational training profile, useful to trainees and employers alike.

From Vocational Profile to Vocational Training Profile in six steps

The development of vocational training course profiles should be carried out in steps, as follows:

- step 1: groundwork
- step 2: vocational profile analysis
- step 3: vocational function grouping
- step 4: qualification structure development
- step 5: definition of certificate units within the qualification structure in terms of training objectives, "goals of qualification"
- step 6: training objective verification

Before beginning step one, the CIBB's educationists establish whether there is already a verified vocational profile (i.e. a definition, accepted by the relevant social partners, of the qualifications a person requires to practice the profession in question).

Step 1: More specifically, this groundwork will cover:

- inclusion of vocational qualifications, social qualifications and career development qualifications
- narrow versus broad training

courses;

- co-ordination between short, medium and long training courses
- the training institutes' room for manoeuvre
- examination methods

- the number of certificate units
- integration of the various types of qualifications into certificate units
- compulsory and optional certificate units
- specified versus loosely formulated training objectives
- the elements included in the training objectives

Step 2: The next stage of development involves an analysis of the functions of a practitioner of the occupation in question. The bases of this analysis are (a) the importance attached to the various functions by practitioners, and (b) the numbers of those fitting the vocational profile who perform a given function.

These selection criteria are used to decide which functions trainees should be taught to perform. So, if a particular function is given a high importance rating by the practitioners, the training objectives have to address the need for trainees to perform this function.

Using the second selection criterion, decisions can be made on the basis of the number of those fitting the vocational profile who perform a given function. If it appears that a given function is performed by only a (very) restricted number of practitioners, then naturally the necessity of instructing trainees in this function is examined very closely. Should it be clear that a large proportion of practitioners perform a given function, then clearly this function is a fundamental part of

the occupation, and the vocational training course profile ought to include it.

Step 3 involves grouping the selected occupational functions. Relationships in function content generally form the basis of this categorization. Grouping can often directly follow the function groups laid down in the vocational definition. Sometimes, however, subdivision of the groups is required. This enables differentiation to be made within certificate units.

Step 4: Qualification structure development. The verified vocational profile forms the basis for the vocational training profile. The vocational definition indicates the qualifications for which trainees have to be prepared; the qualification structure provides an overview of the certificate units which together form the vocational training course profile.

Within these certificate units, the content of the training course(s) is defined in the form of training objectives.

Step 5: In defining certificates in terms of training objectives ("goals of qualification"), the CIBB adheres to the guidelines of the Ministry of Education.

This means that training objectives developed by the CIBB are tested against the following criteria:

- Training objectives should relate to the situations in which students are likely to find themselves in the future, at work, in further education, and in wider society.

- Training objectives should determine the education provided by a particular type of school.
- The specification of training objectives should form a suitable starting point for course establishment and examination programme development.
- Training objectives should not dictate course structure in detail.
- Training objectives should be clearly formulated.
- Training objectives should be defined in terms of the level students should attain at the end of the course.
- Training objectives should relate to performance and qualities, not to study activities.
- Training objectives should relate to actual (vocational) activities and functions.
- Training objectives should specify the type of command a student should have of a given activity or function.
- Training objective documentation should be more than a mere reflection of current training or examination practice.
- Training objectives should be derived from and based upon existing, recognized vocational profiles and/or vocational training course profiles.
- Training objective documentation should relate primarily to skills; the accent should not be upon knowledge or understanding.
- Training objectives should be arranged in certificate unit groups.
- Training objectives should display pedagogical integration between lines of training and study materials.
- Training objectives should relate to internationally recognized vocational practice levels as defined by CEDEFOP.
- The training objectives for shorter courses and those for longer courses should be properly related to one another.
- Training objectives should be related to stated course durations.

These requirements have consequences for the way training objectives are formulated. It is important that a consistent approach to the task is taken, and standardized structure has been selected.

Finally, the steps described above form a standard procedure. This standard procedure is based on a staged plan. However, the procedure is not sacrosanct. In other words, the staged plan can be adapted to accommodate the wishes and requirements of the customer.

In this way a "Royal road" is walked down, that means: if you want to develop curricula for an institute the next steps are compulsory.

- 1 to develop a vocational profile (task of social partners)
- 2 to develop a vocational training profile (task of social partners and

board of training)

- 3 to develop a curriculum for a certain institute (task of training institute)

APPRENTICESHIP SYSTEM AND SENIOR SECONDARY VOCATIONAL EDUCATION

This introduction about certification of vocational competence consists of four parts. The first part gives a short description about the vocational education in the Netherlands.

The second part describes the system of examination in the different types of vocational education.

In the third part I shall give some further explanation about the policy.

The fourth part describes the development and implementation of a modular system in vocational education and training from the practical point of view.

Before I start with a short explanation about the vocational education in the Netherlands I shall give some more information about the context of the

topics certification and examination.

At the end of a period of vocational education a student has to pass a test. The starting point of the result regulation is that all components necessary for the qualification must be sufficient (at least 6 or higher).

At this moment almost all the vocational training courses finish with final examinations. During the course there are two or three moments of preliminary examination.

When a student passes the examination, he receives an unlimited qualification, a qualification for the life-time.

As a consequence of the fast and regular changes in the performance of a profession, social partners are in favour of a qualification of workers (students) for a certain period of time. Certification is a limited qualification, qualification for a number of years, e.g. 10 years.

The vocational education component within the second phase of advanced education contains two learning pathways: the dual learning pathway of the apprenticeship system and senior secondary vocational education in day school framework. (Figure 1.)

	Apprenticeship	SSVE
1 Formation education	Dual	Full time Part time Full time + conclude dual
2 Examination	Central national examination	School examination and (sometimes) central exam
3 Establishment goals of qualification type education	E&S ANF	E&S ANF
4 Design examination programme: a central exam (= establishment) b school exam	a LOB/CEC (LOB b non applicable	a LEC (O&W/LNV) b school
5 Involvement industry social partners in exam	co-deciding/executing	consulting/co-executing
6 Recognized documents upon: a complete succesful conclusion of course b succesful conclusion of part of course	a Diploma b1 Practice report b2 Certificate per exam component	a Diploma b Certificate per exam component
7 Scope of recognition	National	National
8 Further possibilities (with diploma) in education (see par 1.8)	Schooling employed people	Post SSVE/HVE
9 Most relevant nature of assessment criteria in exam/testing	Knowledge skills exam/testing	Knowledge skills performance
10 Relevance labour market diploma	High	High

Figure 1. Apprenticeship system and senior secondary vocational education (SSVE)

Apprenticeship system

The apprenticeship system is contiguous to the level of junior secondary vocational education (LBO/VBO) and junior general secondary education. Only those for whom complete compulsory education has finished: 16-year-old and older can be admitted into the apprenticeship system.

The courses in the apprenticeship system are divided into

- two- to three-year courses to initial execution of occupation (primary education: EC-level II).
- one- or two-year courses to independent execution of occupation (secondary education: EC-level III). These courses may be followed by those who possess a diploma of a course for initial execution of occupation: primary education apprenticeship system or short senior secondary vocational education.
- One- to two-year courses to specialized execution of occupation (tertiary education; EC-level IV). These courses can be followed by those who possess a diploma of a course for independent execution of occupation.

Senior secondary vocational education

Senior secondary vocational education is taught at schools in the following sectors: engineering; agriculture and

natural environment; economics; service and health care. Senior secondary vocational education is contiguous to the end level of junior secondary vocational education and Junior General Secondary Education. The courses in senior secondary vocational education are divided into

- short courses of no more than two years aimed at initial execution of occupation. The qualification level of short SSVE has been equated with the level of the primary apprenticeship system (EC-level II).
- (now still experimental) three-year intermediate courses, which have the same value as the secondary courses in the apprenticeship system (EC-level III).
- long three- to four-year courses to independent execution of occupation (EC-level IV)

In-service health care education

One variation on the initial vocational education is the so-called in-service education for the nursing and caring occupations, which formally comes under the responsibility of the Ministry of Welfare, Health and Culture.

This health care education takes place at both the level of senior secondary and higher vocational education, EC-level III and EC-level IV.

TESTING, EXAMINATIONS AND CERTIFICATION IN VOCATIONAL EDUCATION

The second phase of advanced education is strongly in motion. Some changes are:

- testing, finishing and examination as arranged in the Apprenticeship system Act. The Cursory vocational Education Act will be applied from August 1 1993 for the apprenticeship system;
- the national bodies of the apprenticeship are changing into national bodies of vocational education. Their number is reducing from 31 to approximately 14;
- the new examination decision for the entire senior secondary vocational education that will be applied from August 1993 and the changes that have been made concerning the different examination decisions that applied previously;
- the pathway curriculum and examination programme development in senior secondary education/apprenticeship system according to the innovated setting of tasks to the national bodies of vocational education.

Apprenticeship system

The training programmes within the apprenticeship system are set up by the national body of the apprenticeship

system, in which the social parties have responsibilities in particular. The minister decides the so-called *Lehrpläne*/balanced programmes, which consist of two parts: a school-curriculum and a practice programme. Next to this the programme contains at least the admission requirements, the duration of the practice training and also the requirements the pupil must meet in the practice part and the theory part (the school-curriculum). At the end of the practice training the national body will offer the pupils an opportunity to sit for an examination. The pupils who have regularly followed the general education and the education aimed at the occupation (BBO: occupational guidance education) will at any rate be admitted to this national examination.

The examination consists of a practice part and a part in which the understanding and the skills aimed at in the education, will be tested. In some branches of industry the examination of the practice part will take place in specialized examination centres.

The Cursory Vocational Education Act introduces some changes in the regulation above, such as:

- The examination programme is established by the national body. The determination by the Minister is limited to the goals of qualification. The goals of qualification are clustered into certificate units, which will be drawn up by the national body.

The apprenticeship system courses will be increasingly modulated. That is to say that the programmes will be composed of subject matter in units (modules), in which the theoretical support is closely linked to the practice situation of the participant. The testing and conclusion will be brought in connection with the modulated design of these courses; (absolving) preliminary examination/testing and (possibly) a final examination.

A part of the training programmes in the apprenticeship system have been given a "Euro-standard". This concerns the primary courses which have already been entered into the diploma-comparison-project. Graduates of these courses can apply for an official certificate at the national body: this Euro-certificate states in different languages what the value of their diploma is. Next to this, bi-certification takes place at a modest scale, in which pupils from border regions sit for both the Dutch and the foreign examination: for instance, courses in metal engineering in co-operation with Germany.

Senior Secondary Vocational Education

The new harmonized examination decision for senior secondary vocational education, which will be implemented on August 1 1993, has the following plan:

- The goals of qualification - divided

into certificate units - of the courses in senior secondary vocational education will be established by the Ministry of Education and Science and for agricultural education by the Ministry of Agriculture, Nature Conservation and Fisheries.

- There are two types of examinations: the school examinations and the central examinations. A central examination applies only to those subjects/examinations part/certificate units which are relevant on the basis of other legal regulations than those which come under the responsibility of the Ministry for Education and Science.
- The Minister will establish a national examination committee every year for each sector of SSVE, which draws up the examination programme.

The central examination programme drawn up by the national examination committee will be sent for comment to organisations from the worlds of education and industry which have been appointed as a representative body by the Minister (new national body of vocational education).

- the competent authority of an SSVE-school supplies to the education inspection: (a) an examination regulation, including the central examination programme and the school examination programme and (b) the general rules and procedures which play a part in the

- examination;
- both the central examination and the school examination will be taken under the responsibility of the competent authority of the school;
 - the apprenticeship or the practice learning period may occur as a separate examination component or part of it. The result of the apprenticeship is expressed as sufficient or insufficient;
 - the starting point of the result regulation is that all components necessary for the diploma must be passed adequately (mark 6 or higher); all the necessary certificates - stated in the examination programme - and the possible separate apprenticeship, will give a diploma when all certificates are handed in. The SSVE diplomas have a high value on the labour market.

At this moment the examination decisions for the separate sectors within senior secondary education are still applicable, which deviate to a greater or lesser degree from the new regulation.

MORE COHERENCE IN VOCATIONAL EDUCATION

At this moment a development is started to promote more coherence in vocational education in senior secondary vocational education. In the near

future there will be one qualification structure for both learning pathways: the dual learning pathway of the apprenticeship system and the senior secondary vocational education in dayschool framework.

Four phases to arrive at one qualification structure

An important political starting point is that every citizen in the Netherlands is given the opportunity to obtain at least a starting qualification in order to be able to function on the labour market. This objective can be realized via different learning pathways. It is the intention to bring about more cohesion between the various learning pathways (level below higher education). This will be realized in four phases when we have the first phase start at senior secondary vocational education that went through a merger and restructuring process at the end of the eighties.

The first phase was concluded in the beginning of the nineties by the merger of the long and short courses in senior secondary vocational education. The existing objectives of these courses have been translated into goals of qualification established by the Minister, which will be tested on the basis of the examination decisions which are still applicable. Here we speak of the first generation goals of qualification. The second phase has practically been concluded as far as development is con-

cerned. Implementation of the results will occur from August 1, 1993 on, with these second generation "goals of qualification". Its targets concern the goals of qualification for senior secondary vocational education which were realized via the so-called 'royal road'.

The third phase deals with the programme cohesion between the SSVE courses and the vocational courses in the apprenticeship system. These third generation goals of qualification will be established by the national bodies.

The development (very probably) will conclude so that a new Vocational Education and Adult Education Act will be implemented on January 1 1996. In the end one qualification structure per sector of industry is aimed at whereas the third generation goals of qualification are aimed at those courses which came under the responsibility of the Ministry of Education and Science and Agriculture, Nature Conservation and Fisheries, in the fourth generation the courses from other Ministries will be involved: Social Affairs and Employment/Central Administration Employment for among others the Centres vocational Training and the women vocational schools; Welfare, Health and Culture for the in-service training of nursing occupations. It will also be attempted to involve the schooling of employed people, including the private training circuit in this development. The result will be one qualification structure per sector of industry: one

system of courses with their goals of qualification, certificate units, examinations and the diplomas with their pertaining rights.

Steps as regards contents on the 'royal road'

The (legally) established royal road for the development of curricula and examinations comprises roughly three steps, which have mainly been borrowed from the original working method in the apprenticeship system.

Step 1: Designing vocational profiles.

A vocational profile reflects the core of an occupation or a group of occupations: a description of the occupational activities as they take place now and will do in the future in occupational practice, and the requirements someone must meet who executes that occupation or wants to execute it in the near future. In other words a vocational profile is a structured collection of statements about tasks which will, as a rule, occur in the execution of a certain occupation. The design and establishment of vocational profiles are primarily the responsibilities of the social partners.

Step 2: From vocational profile to vocational training profile.

A choice is made from the qualification requirements from one or more vocational profiles, so that by this reduction

it is indicated for which qualification requirements the training prepares: the vocational qualification. This vocational qualification is complemented with requirements in connection with moving on to the forms of further education (movement qualification) and with requirements in connection with the general social preparation (general social qualification). The vocational training profile describes the contents of the course in the form of goals of qualification, which are clustered in certificate units. In additions to the contents of a course the training profile also decides the place (long, middle long, short) the form (dual, full time or part time) and the educational starting points of the course.

The vocational training profile is designed jointly by representatives of social partners and education. Establishment of the goals of qualification and certificate units is done by the Minister, after having heard and consulted the highest ministerial advisory body, the Educational Council.

The vocational training profile is the framework for the school work plan and examination programme development.

Step 3: School curriculum development. A school curriculum is a description, as complete as possible, of the education programme of the school. The school shows in this plan how it wishes to reach the attainment targets with the pupils. The responsibility for this third

step is (to a great extent) situated in the schools.

THE CONNECTION BETWEEN "GOALS OF QUALIFICATION" AND "EXAMINATION AND TESTING"

In this part of my presentation I shall try to make a connection between the development procedure of the qualification-structure and the development of examination and testing.

The development of testing and in particular test-items has always been a problem. Outside experts were used but also teachers had an important role in the development of test-items.

There was not a sufficiently close relation between the goals of qualification and the test-program. The content of the test-program was an interpretation made by the developers of the test-items. To reduce the risks, we have adjusted the procedure.

In fact, the connection between the development of 'goals of qualification' and the development of 'test-items' (examination) is improved. The scheme shows the development-procedure:

- qualification structure
- vocational training profile
- certificate-units
- goals of qualification
- testing goals
- test matrix
- test items
- examination

The scheme not only shows the

procedure to define 'goals of qualification', it also shows a further development into the level of examination. After the development of the 'goals of qualification', the definition of the test-goals starts. These goals are formulated in greater detail and therefore the information of the test-goals is much more a guidance for the developers of test-items. After the test-goals are defined, a test-matrix has to be developed. The test-matrix consists of the different testing-goals. Each test-goal receives a certain value.

The value is based on the importance of the test-goal; the test-goals have different levels of importance. The test-goals which are based on vocational activities of frequent occurrence must cover a larger part of the examination than test-goals which are based on vocational activities of less importance.

The procedure improves the relation between 'goals of qualification' and the examination at the end and during the training course. To manage the whole process of development of test-items, we use several computer-programs (computer-software). The computer software is called computer-based-item-banking.

As a last remark I wish to add information about a new development: Curriculum development by computer. In the Netherlands software development has taken place to assist curriculum-developers in their work. The software contains computerized

procedures for the development of curricula and training-programs. The curriculum-development is a process, defined in steps to be taken. The decisions necessary and the rules for information transfer are obtained from the best curriculum developers in the Netherlands with a long-term experience in this field.

The system has the following sets of rules:

- it can work with different types of education/training, for example, it can handle the difference between initial training and retraining;
- it can handle different types of occupations/jobs, for example it can handle the difference between a production occupation and a managerial kind of occupation;
- it can handle different purposes for the occupational analysis; for example it can handle the difference between legislation and curriculum development;
- it can handle different levels of education/training; for example it can handle the different levels as vocational preparation and secondary vocation education;
- it can handle the different ways of objectives-terms; for example it can handle the difference between a knowledge objective and a competency bases objective.

GOAL and OBIS is not an aid of information, but a system of production. It is an educational development to produce and/or enrich occupational

profiles, training programs or vocational education. Our experience is focused on using and optimize the artificial intelligence segment of the system, particularly the part comprising the goals of qualification.

THE DEVELOPMENT AND IMPLEMENTATION OF A MODULAR SYSTEM IN VOCATIONAL EDUCATION AND TRAINING: PRACTICAL PROBLEMS

Introduction into Modularization and Flexibilization

Modularization becomes really difficult when the innovation is to be implemented in the training system, and to be more concrete, when modularization has to be introduced into the educational situation.

This introduction will deal with a number of experiences, possibilities and problems which have presented themselves in modularizing activities since 1982. The modularizing activities carried out take place in initial courses, within the vocational training systems, i.e. day-time courses of adolescents and young adults (age category approx. 17-24 years old).

The modularizing innovation activities fit in with the national "Apprenticeship System Development Plan" innovation programme, on the basis of

which the Ministry of Education and Sciences grants subsidies. The innovation topics are initiated by the training institutes, organized for each industrial sector, and in the second instance taken over by the authorities and laid down in policies. The industrial sectors give at least as much financial support to the development as the authorities and in many cases the industrial sector bears 60 % of the budget or even more.

Modularization is not a new label for concepts and ideas which have existed for years already, modularization is a clear practical educationally tested solution to current bottlenecks in vocational training.

Historically we may state that the restructuring activities within the Building and Construction sector the "hoe project" was started in the early eighties. Within the office branch, the modularizing of the practical course component was started in 1982. Then a two-year secretary course was divided into 10 modules/units such as post handling, filing, typing etc. These were pilot projects, intended to find out which problems would present themselves in the implementation of the modularizing concept.

In 1983 a large modularizing project in the Metal Industry was started. In that year over 20 separate courses were merged into 3 groups of courses with a total of 10 follow-ups/qualifications.

During this period modularizing was still considered to be a panacea: "a

universal remedy" for solving all kinds of problems which have presented themselves in vocational training courses. In this respect, I am in particular referring to the dual vocational training system: the Apprenticeship system. At that time modularizing innovation had as many as 25 objectives; modularizing was used as an umbrella concept to solve: school organization problems, pupil motivation problems, curriculum problems, dated contents of courses, rigid rules laid down by the authorities, etc. (e.g. the course had to take at least two years: if you were older than 21 you could not participate in this kind of education).

In the middle of the eighties modularizing became less ideological and more practical. The core elements of the ideology became the core issues of modularizing.

1. Gearing different courses of training and education for one another or connecting those. From the beginning of 1990, in the Netherlands this action is labelled: horizontal and vertical adjustment.
2. The second core demand is increasing pupil involvement, subsidising long training routes into short, clear routes, providing more insight into the training by adapting it directly to the occupational activities. Occupational activities form the criterion for making a module, a unit, in vocational training courses. For instance the modules:

- learning how to bend a copper pipe (installation technique);
- putting up pipes of a central heating unit in the home.

3. The third core demand is the possibility to implement changes (innovation) rapidly. This approach emphasizes the ability to incorporate changes in production or tools in the training material. As the modules, the training units, are centred around occupational activities, and changes in production usually relate to the occupational activity, a technical innovation may rapidly be implemented within the modular system. A number of modules are simply replaced.

By means of modularizing we try to realize the following objectives:

- breaking open the rigid initial educational system. The classical organization of vocational training is considered to be a stagnation with regard to the improved efficiency of education;
- changing the initial system in such a manner that it also offers possibilities in the field of retraining and further training;
- putting vocational education closer to the occupation. In modular systems the occupational task to be learned is selected as the criterion for inclusion in the course: the subject matter connects training and occupational practice, the pupil does not have to translate theory

into practice;

- connecting separate courses. The former pipe organ model:
 - delays the innovation speed (changes in occupation content must be separately implemented for each course);
 - impedes horizontal streaming/overlapping possibilities;
 - obscures which courses are offered.
- creating more possibilities for the pupils who leave school as drop-outs and do not get a certificate so that uncompleted courses still produce some result.

Bottlenecks in modularizing

The people who carried out the first modularizing projects were pioneers, they had to discover for themselves what could go wrong and subsequently had to find solutions by themselves.

It became clear that the biggest problem was the production of the actual training material; there was no proper infrastructure to realize this extensive work. It was often assumed that teachers would be able to produce the training materials during the numbers of hours they were released from teaching. In view of the multitude of courses and the relatively small number of pupils the market was not attractive for commercial publishers; this is an obvious disadvantage of the small Dutch-speaking area.

A second bottleneck was the assumption that teachers and in-practice trainers were supporters of modularizing. Many people involved proved to have become tired of innovations.

An innovation like modularizing, having as a direct consequence many changes in the task of trainers, takes a considerable time to get used to.

On account of the above-mentioned bottlenecks it was decided in most cases to implement modularizing first and then realize flexibilization step by step.

What kind of flexibilisation is possible?

A. The choice of techniques

This relates to occupational activities which may be carried out by means of different techniques.

B. Differentiations within the qualification system.

This occurs in occupations with a clear difference of accent. For instance a maintenance-mechanic has studied gas and liquid transport, but has not studied hydraulics, pneumatics and/or transmissions (and vice versa).

The above-mentioned options are restricted by the national qualification agreement.

Therefore modularizing does not create a supermarket in which the

pupil himself decides which modules he will or will not take. Before a pupil can obtain a national qualification, a number of compulsory modules (and/or combination of modules) must be mastered.

Recognized national qualification will not be obtained until combinations of modules have been successfully dealt with. Local certificates may be presented in the case of shorter training routes, but these will not be given national recognition.

Further flexibilization must be realized within the schools.

- Flexibilization in the order of the subject-matter;
- Internal differentiation within class group;
- Speed differentiation;
- Et cetera.

Modularizing in the educational situation

As was stated at the beginning, modularizing is really becoming difficult when it has to be applied in practice. Within the Dutch vocational training system this means that 'trainers' should be willing to work with modules as the developers should offer the tools and aids required in their flexible application.

An evaluation survey conducted by the University of Amsterdam (SCO) in 1990 shows that new modularized courses put a severe strain on schools

and in-practice companies. This is not only the case with regard to such preconditions as timetable facilities, finances, interests, classrooms and training policy within companies, but also with regard to such preconditions as timetable facilities, finances, interests, classrooms and training policy within companies, but also with regard to new skills of teachers and in-practice trainers.

In the modularized system teachers and in-practice trainers have a different role in the learning process. A much stronger appeal is made to the training skills of the In-practice trainer. Teachers, too, will have to be given additional support and training in order to let them familiarize themselves with their new role. Special attention will have to be given to learning how to deal with differentiation.

A few months ago CIBB listed the bottlenecks in a modularizing project. A survey was conducted among the teachers involved. The following reactions were given with regards to:

- Reactions to training material

Some people indicated that the training materials have not yet been properly geared to one another. Often, it is not quite clear where to find things, which leads to irritation with the pupils. The evaluation questions are inadequate, it is difficult to find the answers back in the material. Lab assignments usually have to be skipped because the school does not possess the required inventory

such as machines, tools, demonstration models. In the opinion of some teachers the training programme was overcrowded. All this leads to confusion and problems of motivation with pupils.

- Reactions to flexibilization

- The flexibilization start has partly been reversed; the teachers still have to get familiar with the new teaching material. Many of them think that in the future the basic material will have to be dealt with at class level.
- The teachers wonder whether the individualizing approach fits in with the learning style preferred by the pupil.
- Some teachers reported that adults prefer to do the learning at home and only come to the Institute to do the tests. As a result, the teacher is unable to supervise the learning.
- Several schools indicate that the speed of the learning process increases, the course will in particular last longer for the weakest pupils.
- Teachers expect problems when pupils can start the modular courses throughout the year.
- Problems are expected as a result of the fact that differentiations do not have the same duration. What do we do with the pupils? What do we do with the fast pupils who finish the course much more rapidly than planned?

- Reactions to implementation days

The days were organized by each industrial training board to support working with modules in the educational situation. Most schools have visited the implementation days. Appreciation ranges from positive to negative. In general, people wish to have more practical information, for instance:

- how to organize flexibilization within the class group;
- more support of the in-practice trainer within the companies;
- what are the examination procedures like;
- how may the lab problems be solved;

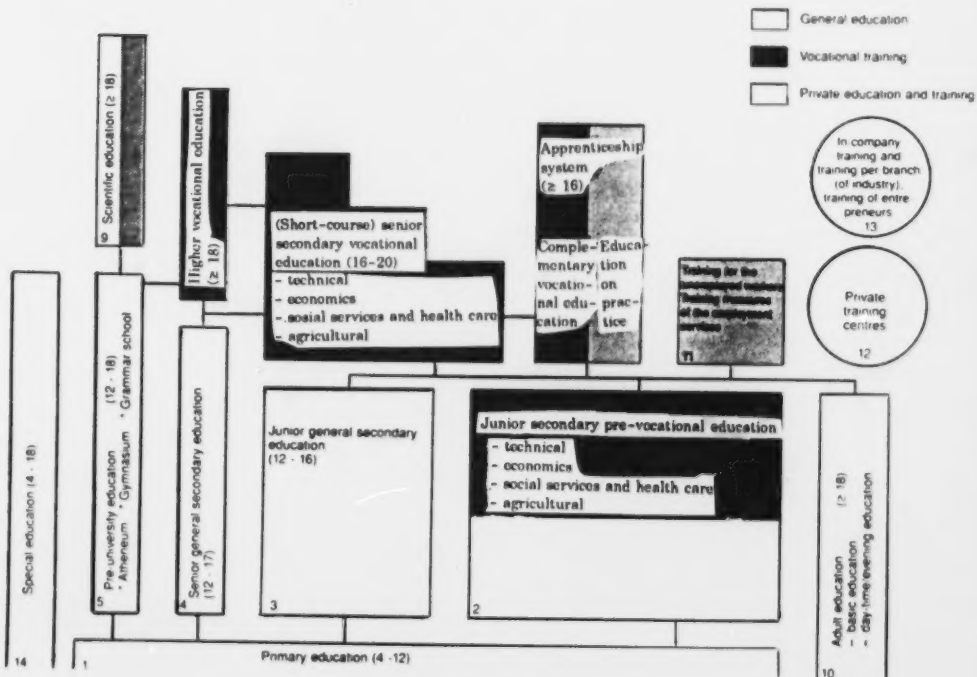
Conclusions

On the basis of the evaluation surveys I draw the following conclusions:

- Modularizing becomes really difficult when it has to be applied in practice.
- Teachers are over-concerned.
- Modularized courses require a different way of teaching and learning. Pupils have to become active in class; apparently they are not used to this. All changes in the role of pupils are often indicated as bottlenecks by the teachers.
Teachers become learning process supervisors; as a result they have less certainty and clarity at the outset.
- The persons involved must be adequately and properly trained for

the new tasks.

- Teachers and trainers have to get used to the new system.
- Training materials have to solve nearly all the problems.
- Evaluation survey gives enough leads for perfecting the modular system.
- Developing modular-courses is an innovation activity which has to be mastered well.
- Changes in the role and tasks of trainers cannot or can hardly be realized if they do not except the innovation.



SOME ESSENTIALS OF THE DUAL SYSTEM OF VOCATIONAL TRAINING IN GERMANY

Wilfried Reisse

Nine essential features of the Dual System are described. They distinguish the German vocational training system from that in many other countries and form the background for the triple certification of vocational qualifications in Germany. Descriptors: vocational education, dual system.

1. Vocational training is located in the overlapping area of the economic and the educational system

Bridging the gap between education and economy (the labour market) is always difficult because the general goals of education and economy are normally considered as completely different. It might be a bit easier, if a situation is arranged, in which vocational training is seen as a part of both systems - that means, vocational training is located in an overlapping area.

This solution is realized in Germany in which the prevalent type of vocational education - the Dual System - may be interpreted as part of both systems.

As a consequence there are different viewpoints regarding vocational training: Some years ago, when I gave a lecture in Germany, arguing that more new educational ideas should be integrated in company training, a representative of an employers organisation told me: "That's completely misleading, after all, we have to obey economic principles". On the other side teachers of vocational schools often claim a sufficient degree of independence from labour market forces.

Of course there are discussions, different opinions and sometimes conflicts between both groups - for some, vocational training is part of the economy, for others it belongs to the domain of education. But these conflicts are solved, as representatives of both groups work together in the same

system to find practical solutions satisfactory for both groups. Examples are committees for developing training regulations and examination papers.

2. A comprehensive and uniform approach: The Dual System

In Germany the school-labourmarket transition can also be realized in different ways: some school leavers receive school-based vocational training, others get short on-the-job training. But the percentage of young people taking these paths is very small. The prevalent way is the Dual System, based on the Vocational Training Act of 1969. As you may know, the Dual System is a combination of school and company training:

- It is termed "dual" because all students receive training at two sites, namely in the firms and in part-time vocational colleges. Most of the training takes place in the companies (about 3-4 days a week). Usually the training course takes three years to complete.
- The legal foundation for training is different for each place of learning (the Federal Government is responsible for the regulation of company training and the different States for school-based training). The company part of the training is based on uniform regulations issued by the Federal Government, in accordance with the Vocational Training Act.
- The system is also called "dual" because governmental organizations and the economic system are cooperating in this field of education.

This system is not limited to traditional apprenticeships in the crafts. We have about 380 so-called "federally recognized occupations" in trade and administration, industry, services, agriculture, the health system, etc.

So we favour one approach, not a mixture of different types of vocational training.

3. Financing vocational training mainly by companies

I think that the crucial point of the German training system is the specific solution for financing the system: Usually the companies pay a lot of money for vocational training. I remember a remark of a representative of one of the umbrella organizations for the German employers, when we were attending a workshop like this one. He said, "It is very simple: If the employers in this country spend 2 or 3 % of the total wage sum, it will be possible to discuss a development of a similar system, and to exchange experience, otherwise we propose other systems or had better stay at home."

There might be different reasons for this approach: Decision makers in companies think that it pays off to invest money for a sufficient supply of competent and skilled workers. For example, you may hear in the crafts that without training by the companies themselves, they will not find enough skilled workers in the labour market.

Besides, I think that training is considered as part of the tradition and of the corporate identity of an enterprise by the enterprises themselves.

I should mention that recently problems have emerged related to this point, especially with companies in the eastern part of Germany. I assume that you are informed about the economic breakdown in most of the industrial areas in the new German States.

4. The remarkable difference between initial vocational training and further vocational training

It is typical for the German system that there is a very wide difference between initial vocational training and further vocational training.

Initial vocational training is by far more regulated and standardized than further vocational training, which is seen as a second level. In further vocational training some regulations also go back to the Federal Level, e.g. for master training. Chambers of commerce and industry have issued other regulations, and there is enough leeway for everyone to offer training opportunities and issuing certificates.

In this way a highly uniform and standardized initial vocational training is combined with a very open and flexible additional level of further vocational training. You may imagine that there are many different opinions as to

where the boundaries of both levels are to be drawn and whether we should strengthen either initial vocational training or further vocational training. By the way, for some years we have not used the terms "youth education" and "adult education" in connection with vocational training because an increasing percentage of our trainees have reached adult age.

5. The support of strong political groups for vocational training

Not only the employers think that vocational training belongs to their responsibility, the unions claim that it is their domain as well. So vocational training is based on social partnership, which generally plays a very important part in our political and social system.

There are two additional decision makers: The Federal government and the government of the States.

6. Standardization and flexibility in initial vocational training

Different instruments/measures are used for the high level of standardization, typical of initial vocational training:

- The Federal government is responsible for vocational training in companies,
- the "principle of exclusivity" in the vocational training act does not

allow to offer initial training outside the recognized training occupations,

- there are detailed training regulations,
- the company-trainers and the teachers are certified professionals,
- before starting training, a company has to prove that the necessary prerequisites for training are fulfilled,
- finally: there are interim and final examinations used as an instrument for quality control of the company training.

It seems to me very important that standardization is practised at the level of recognized training occupations, not at a level of parts of the system like modules.

But what about flexibility when taking into account changes and differences in economy and technology?

I think there are two conditions to support flexibility in this highly unified and standardized system:

- Large parts of the training are conducted at the workplace in the companies. So training is more determined by the tasks of real working life than by training regulations.
- Much flexibility is allowed, and the amount of control is not very high. To say it in a simple manner: Only the very black sheep are kicked off.

7. The structure of training: A broad-to-specific-approach

The trainee occupations in the metal-

working industry may serve as an example:

There are six trainee occupations: industrial mechanic, tool mechanic, metal cutting mechanic, construction mechanic, plant mechanic, and motor vehicle mechanic.

The trainee occupations may be imparted by specialized subject areas, as for example production mechanics and operation technique for the trainee occupation of industrial mechanics. You will find 17 different specialized occupations gathered in this scheme.

According to this schedule, training starts with vocational foundation training, which is the same for all trainees in metalworking. In the second year four different groups are distinguished, and in the last two years training is highly specialized.

At first sight, this system appears to be completely different from a modularized system. But please take into account that the training is divided in different parts. Some of them are the same for all trainee occupations, e.g. structure and organization of the training place, reading, application and drawing up of technical specifications, maintenance of machinery, joining.

You will discover, that this broad-to-specific-structure may also be interpreted as different combinations for different training occupations using the same pool of curriculum elements. But there still are differences, which we will discuss later.

8. Emphasis on a broad and comprehensive concept of vocational training, national goals and content areas and higher level qualifications

Like in most other countries, where issues of vocational training are discussed, in my country specialized knowledge and skills seem to be no longer important.

Let me demonstrate what that means:

- a) Starting with the Vocational training act (1969) the following goals are defined in Section 1:

"...a broadly conceived basic preparation for an occupation..."

"...necessary technical abilities and knowledge to engage in a skilled form of occupational activity..."

"...necessary occupational experience..."

One consequence of this concept, which also includes necessary vocational experience, means that a person is not admitted to an exam if he/she does not prove sufficient foregoing training - contrary to several other countries, there is no open admission.

- b) The unified content areas in the different training syllabi (a type of common core) are also important for the exams: economics and politics, safety at work, environmental protection, energy conservation.

- c) Recently a triple of qualifications has emerged for newly updated trainee occupations: independent planning of work, performing work and quality control by the skilled worker.

This last type of goals refers to a category often called transferable skills, higher level qualifications, key qualifications, core skills or overarching capabilities - whatever you want.

As I have learned from other countries (e.g. United Kingdom, United States), it is generally preferred to work with a limited number of qualifications at this level of specificity. In Germany there also is a tendency in favour of a limited number - these three qualifications as mentioned above appear in a growing number of training regulations.

On the other hand there is a tendency to define more and more qualifications of this higher level type: Recently I came across a book which sums up nearly 300 different key qualifications for vocational training. But I suppose that although a large number of higher level qualifications are defined for training, it does not necessarily mean that all these competencies could be taken into account for training and certification.

To summarize this development: the concept of Vocational Competence has substituted the ideas of different skills and knowledge.

At this point I would like to an-

swer a question which I hear very often in my country: How do you examine vocational competence?

My answer is very simple: you cannot examine vocational competence at all. You only may get some information about different aspects of competence by the results of different assessment procedures and the corresponding certificates.

9. Admission to Vocational Training mainly by companies

Admission to vocational training follows mainly personnel decisions of companies, that is, someone is hired for training and a training contract is signed with him or her. The contract is based on the government issued training regulations. As a consequence the trainee has to attend a corresponding part-time vocational college. For those who do not succeed in getting a training place, there are additional opportunities to take up vocational training, in some cases outside the dual system.

There are no formal restrictions or specific prerequisites for a recognized training occupation - but of course the probability to have access to a top level training occupation is higher with a high educational and achievement level.

10. Concluding remarks

I would like to add a remark concerning the comparison between a holistic system like the German one and a modularized system. As I have explained above, regulations for the initial vocational training in Germany may be described as a combination of elements - with a very remarkable difference: these elements are the parts of a comprehensive system. That means: standardization and certification is practised at the level of the whole training occupation, not at the level of modules. The idea of an occupation as a broad base for earning money in the labour market is still prevailing - in spite of all the necessary vocational flexibility and mobility.

I believe that one may not transfer a comprehensive system like the German as a whole to other countries with differing situations and prerequisites. But some aspects of the German system may also be used in other countries, if they fit the specific conditions of these countries. For example, I think that a combination of a part of the German comprehensive system (maybe for the first one or two years of training) and additional modules at the advanced training levels may be a matter for discussion.

There still is another issue: How can we evaluate the quality of such a system of vocational training like the Dual System in Germany or - more generally - of all vocational training

systems ?

There is one important but very simple criterion: the extent to which the training system is accepted by the companies and the trainees or - in a broader sense - by the economy and society. It is completely voluntary to use it. That means: the percentage of an age group using this system seems to be an important indicator. The percentage is about 70 or more. This number is published yearly in the vocational training report, issued by our Ministry of Education. If this number decreases, the alarm bells ring. Now they are ringing, mainly because of the bad economic situation in the new East German states.

Of course other possible criteria are also defined. In vocational training quality criteria based on the consensus of the social partners are more important than those from educational theory. It should be mentioned that the vocational training system provides measures for establishing and controlling quality as essential parts of the whole system. For example: prerequisites for training sites, training of train-

ers, organizations with control functions as the competent bodies, the annual training report on a national level and the impact of unified final exams as feedback instruments for quality control and standardization of the system.

Finally I would like to point out that the strategy of this conference approach seems to me very reasonable: it is important to discuss and to improve both production and certification of qualifications in vocational education. There is a strong connection between training and certification in our system as well as in other systems. A balance is necessary between training and certification - if one part is neglected, the other one suffers from this failure. In Germany we used to concentrate more on the improvement of training procedures in companies than on certification, therefore assessment and certification problems have become a challenge for us. I understand that you are going to discuss and develop solutions for both fields in Finland.

THE GERMAN SYSTEM OF ASSESSMENT AND CERTIFICATION IN VOCATIONAL TRAINING

Wilfried Reisse

To connect the educational system and the employment system is a very difficult but important task. One approach is the "Dual System" of vocational training in Germany. This report describes the German system of assessment and certification as an essential part of the dual system having a strong impact on the labour market.

Assessment in initial vocational training in the Federal Republic of Germany is widely based on a unified system supported by the Vocational Training Act. By means of a "triple certification system" every trainee gets three different certificates at the end of the vocational training: An examination-based certificate (described in detail), a training-firm certificate as a type of employment record, - and a vocational-school report. This system offers a mixed approach of external and internal assessment.

The system of assessment in vocational training offers important benefits, especially by a unified final examination. But there are also some problems to be solved. This example of the German vocational system shows that criteria of an assessment/certification system may have a strong impact on essential criteria of the labour market.

THE CHALLENGE TO CONNECT THE EDUCATIONAL SYSTEM AND THE EMPLOYMENT SYSTEM

It is a very difficult but important task to link the educational and the employment systems. One possible approach is the dual system of vocational training in Germany. Vocational training is regarded as a part of both the employment system and the educational sys-

tem. Vocational assessment is included as a subsystem of the training system. At best, such assessments and the corresponding certificates may act as a kind of link between these two systems.

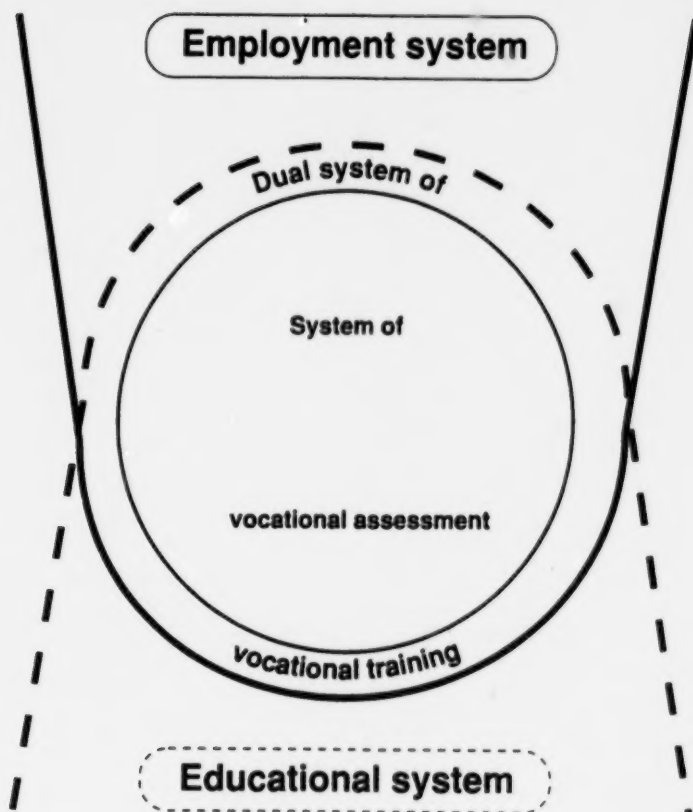


Figure 1. *Vocational Assessment and Certification connecting Employment and Education*

THE DUAL SYSTEM OF VOCATIONAL TRAINING IN GERMANY

Essentials and prerequisites of the dual system of vocational training in Germany are important to know as background information. In order to understand the system of vocational assessment and certification I point out some of the most important essentials of the Dual System.

The dual system is a comprehensive ("large range") system, indicated by

- a high percentage of young people joining the system,
- a lot of different recognized training occupations,
- usually a 3-year period of training;

a highly standardized and regulated system;

a combination of school education and training at the working place - you may regard this as a cooperation between state and private economy;

based on a "general to specific approach" (it is not a modular system);

a system financed mainly by the employers.

THE TRIPLE CERTIFICATION SYSTEM CONCLUDING INITIAL VOCATIONAL TRAINING

In Germany every trainee gets three different certificates at the end of the initial vocational training: An examination-based certificate, a training-firm certificate as a type of employment record, and a vocational school report (see Schmidt & Reisse, 1983).

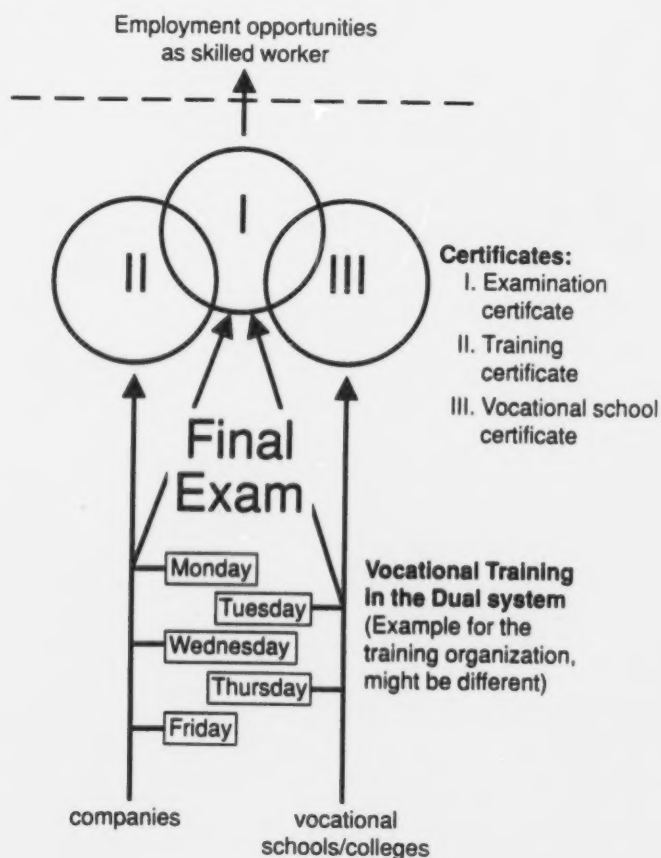


Figure 2. The "Triple certification system"

The three certificates are :

- *Examination certificate*: a result of the state-wide final examination administered to all examinees.
- *Training-firm certificate*: issued by the instructor or company of training.

Based on the Vocational training Act, two types of this certificate are possible:

- a simple type: only short information about the training company, the duration of training and so on,
- a qualified type: additional remarks about working behaviour and other personal characteristics of the trainee.

The trainee can choose which type he wants.

- *Vocational school report*: a certificate issued by the other specific site of instruction, the vocational school.

THE EXAMINATION-BASED CERTIFICATE

Since the examination-based certificate is the most important one for assessing national goals and objectives in vocational training some additional remarks concerning this certificate are added (see Reisse 1991).

The examination certificate, a state-wide "standardized certificate", is issued by the responsible authorities (for example chambers of trades, or

chambers of industry and commerce) on the basis of a final examination. Both training firms and vocational schools are supposed to participate in the administration of this exam. The examination and the certificates are oriented toward specific minimum requirements as laid down in the training regulations and the basic curriculum. The members of the examining boards are proposed by the organisations of the employers and the unions and appointed by the chambers of industry and commerce and other responsible bodies. It is mainly a combination of practical and written testing.

A MIXED APPROACH TO ASSESSMENT AND CERTIFICATION

This system is a mixture of external and internal assessments. Some disadvantages of external assessment (see Macintosh, 1990; Kreeft, 1991) may be avoided by this combination. Final and journeyman's examinations as basis of the examination certificate are a kind of "external assessment" for a standardized minimum-level competency. They are independent of the training site. The training-firm certificate and the vocational-school report are examples of continuous internal assessments.

These three certificates comprise something like a "certification system" for vocational education although these elements have developed independently

and are not co-ordinated with each other.

There are good reasons to assume that the certificates complement each other to a certain degree so that one can regard them as different indicators of occupational competency. Additionally one should take into consideration that this type of procedure, that is the implementation of three different methods being almost independent of one another to assess trainees, may meet different demands.

THE DETERMINATION OF THE TRIPLE CERTIFICATION SYSTEM: PRESSURE GROUPS

Training and assessment are strongly influenced by powerful pressure groups and organisations in Germany. The following groups are of high importance to all decisions concerning vocational training, e.g. setting goals and standards for the certification system:

- Employers'Associations,
- Trade Unions,
- Federal Government,
- Government of the States.

THE ROLE OF THE CERTIFICATION SYSTEM IN TRAINING AND LABOUR MARKET: BENEFITS AND PROBLEMS

Objectives and limitations of the Examination Certificate

Let me continue with additional information about the Examination Certificate. The role of the examination as a state-wide, standardized "competence certificate" certifying minimum-level competencies is illustrated by the close connection to the training regulations, among other things.

The high reputation of the examination certificate is due to the fact that specific entitlements are linked to it, or that the bearer of a certificate enjoys certain advantages. These are advantages in the case of unemployment, disability, and rights to a pension and in getting better jobs.

In general, the impact of the triple certification system on the labour market seems to be very complex - a field of future research. For example: In order to be admitted to one job it may be sufficient to have an examination certificate, for other jobs this may be a necessary, but not sufficient precondition: a training-firm certificate of a well recognized company may be also necessary to get the job. The examination certificate is often, but not always connected with a certain level of wage. There is, however, no guarantee. Certi-

ificates concluding initial vocational training are neither entitlements or licenses for a position in the labour market - they are just options to get the status of a skilled worker or journeyman.

Personnel decisions in companies can be assumed to be based to a high extent on information provided by this certification system having a sufficient degree of standardization and transparency. But due to the fact, that impor-

tant qualifications may exist which cannot be assessed directly at all, other criteria and procedures are used, as well.

The Benefits of the Certification System

The system of assessment in vocational training, particularly by administering a national final examination offers important benefits.

ADVANTAGES OF THE CERTIFICATION SYSTEM

- Links educational system and the employment system,
- controls quality and output of the vocational training system,
- helps to maintain a uniform level of vocational qualifications,
- results in generally recognized certificates,
- demonstrates essential contents and objectives of training,
- aids employees in applying for jobs,
- aids employers in hiring personnel,
- helps organizations of employers and trade unions in negotiating wages,
- motivates people for vocational training,
- supports implementation of new training regulations,
- provides social and self-confidence for a high percentage of the population.

Figure 3. *Advantages of the certification system*

To sum up these advantages (Fig. 3):

- a standardized level of vocational qualifications in the labour force is maintained and controlled with a high degree of standardization of training results,
- employers get valid information for hiring employees,
- the uniform qualification level is a basis for negotiating wages,
- trainees are strongly motivated for vocational training because of the advantages for persons having the certificates,
- and the implementation of new training regulations is supported.

I would like to describe in more detail the relations between certificates and wage levels, which are not directly correlated.

As background information I should mention that in Germany a high percentage of the members of the labour force are paid accord to collective wage agreements, more or less unified on the national level.

An essential part of these agreements

are the descriptions of wage groups - if an employee meets the task descriptions of one level, he will get the corresponding wage.

These wage group descriptions are a function of the task requirements. And that is why the certificates are important. They are used to define task requirements and wage groups by this way. Fig. 4 shows an example.

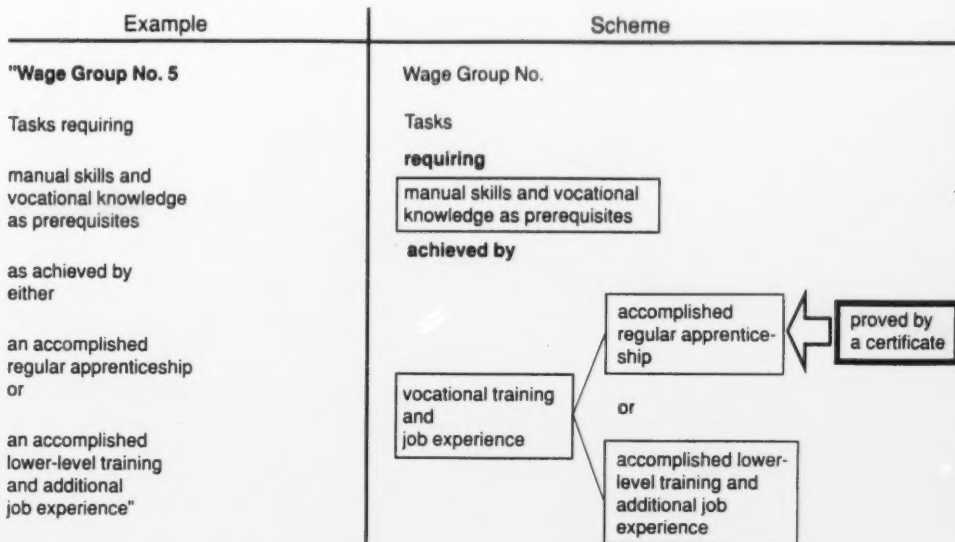


Figure 4. *Certificates as a means to define wage groups*

You will realize that certificate is only one but the most important from two possible criteria to illustrate sufficient training and qualification to meet task requirements. In public services the situation differs in part from private economy: For instance, a university degree may be a necessary precondition

to get a job at a certain wage level. That can not be substituted by other certificates.

Some Problems

I beleve that the assessment and certification system has advantages but

there are some unsolved problems, as well. The balance between the three certificates and their different functions is a matter for discussion (that means, the relation of external assessment by unified examinations to internal assessment by learner appraisal on the other side). Political efforts of the German States being responsible for the educational system are in favour of a more internal type of assessment.

The advantage of external exams and the corresponding examination certificates also has its price. Based on the principle of standardized minimum requirements this kind of assessment can have negative effects, for example

- advanced competencies as objectives of training in leading firms are not included in this uniform minimum level standard,
- here are negative washback effects on learning and training. Especially teachers in vocational schools are complaining about this impact.

CONCLUSION

This description of the German system may be generalized as follows :

- 1) Variables and criteria of an assessment/certification system as
 - Comprehensiveness,
 - Standardization,
 - Transparency,

- Validity,
- Acceptance by the economy
(the "currency" of the certificates) may have a strong impact on labour market variables and criteria as
 - Transparency of supply with
 - job opportunities
 - "suitable" employees
 - allocation procedures
 - career decision strategies of individuals
 - recruitment and personnel selection strategies of companies
 - mobility of the work force,
 - the whole system of wage agreements and the procedures of negotiating wages.
- 2) This is a very complex relationship, depending on "environmental" conditions.
- 3) By this way assessment and certification in vocational training has far reaching effects on the economic and the social systems of a country.

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CERTIFICATION OF OCCUPATIONAL SKILLS AND STANDARDS: THE UNITED STATES PERSPECTIVE

Phyllis Bunn

The vocational education process in the United States is broad, multiform, decentralized, diversified and encompasses both secondary and postsecondary education with a variety of delivery mechanism. Many reforms and innovations are taking place such as outcome based education, tech prep, articulation, integration of vocational and academic education, performance skills and standards, applied academics, work-based learning, restructuring educational assessment and transition from school to work. The United States is working to establish a system of standards, assessment and certifications. Implementation of performance standards: programme standards, performance standards and industry-based standards is a priority of the Carl Perkins Vocational and Applied Technology Act as are other innovations.

BACKGROUND

The United States Education System

The United States has a highly diverse and decentralized education system in which the 50 states are the primary agents. Over 25% (67.5 million) of the people in the U.S. are students or are employed by schools and colleges. There are 83,000 public elementary and secondary schools (K-12) with 46.2 million students enrolled in 1990. Of the approximately 3,500 colleges and universities, nearly 1,500 are two-year

postsecondary institutions of which nearly 1,100 are public. Compulsory school age is determined by each state. Full time education is compulsory usually up to age 16, although it is expected that youth complete grade 12, usually at age 17 or 18, to receive their high school diploma (National Center for Education Statistics, March, 1992).

Vocational education

Education in the United States has been undergoing innovations and reforms for many years and vocational

education is a vital part of much of that reform. Many of these reforms are the result of profound changes that are taking place in the economy and labor market-changes which will have far reaching effects on the skills needed in the workplace and in the educational setting of the United States. Those with responsibility for vocational education have been and are seeking ways to provide workforce needs of the future as well as prepare youth and adults to live a quality life. Vocational educators in Finland are facing similar reforms in vocational education and share many basic goals with the United States.

Specific goals addressed in the paper that follows are mandates of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 that relate to developing performance standards, the development of business and education standards, and certification of vocational competence for entrylevel youth and adults.

Doyle (1992) suggests three tasks for educational reform: (1) to raise the alarm; (2) to propose remedies, solutions to the problems before us; and (3) to implement ideas in place and make them work. Reforms must be tested, tried, and true. The alarm has been raised in both the United States and Finland and for the United States, remedies have been proposed and in many situations are being implemented. Whether these remedies are true is still in question.

I submit that in order for voca-

tional education reform to become a reality vocational teachers must be included in proposing remedies and in making the ideas work. This can only be done by empowering vocational teachers - listening to their suggestions and needs, providing resources, and professional development to make relevant changes happen in the classroom. I concur with those who suggests, that teachers can literally close the classroom door to any changes and escape what is taking place in educational reform. Vocational teachers must be given the opportunity to help establish performance standards, assessment criteria, competence examinations, and skilled worker certification requirements. Recommendations of teachers must be heard clearly and their suggestions heeded as vocational reforms are mandated.

In order to bring about change in schools, Iowa State Education Association (Pipho 1991) suggested three issues as leverage points with the greatest potential for changing schools. These suggestions are appropriate for any school system or any country. They are: decentralization of decision making, individualization of instruction, and technology - important considerations for Finnish vocational educators as well. Empowering teachers and placing them in the center of the reform process, providing adequate professional development, providing adequate resources for implementing changes in producing vocational compe-

tence, evaluation and assessment, and certification of entry-level skilled workers are the keys to reaching innovative vocational education reforms - an investment of time and money which will reap positive payoffs. Teachers must play a role if decentralization of decision making, individualization of instruction, and updating technology are to become solutions to reform and if reforms work effectively and efficiently.

Professional development is essential to planning, delivering, and evaluating vocational programs. The success of vocational education programs, and commitment to professional development should be a precondition to the execution of all vocational programs. Vocational educators must be kept up to date of the changes that are taking place in educational reform and in the workplace. As a key element to the success of any new educational initiative, effective professional development assists professional staff to move from what is to what should be and involves a change process that includes learning new ways of thinking and doing.

The paper which follows addresses neither assessment, competence, professional development, nor empowerment of teachers which are important considerations of vocational educational reform but which have a variety of concepts and meanings in both the United States and Finland. Rather, it looks broadly at the vocational educa-

tion process in the United States. The discussion that follows also looks at the changes that are taking place in regard to performance standards and certification of entry-level skilled workers and discusses how vocational training takes place in entry level skilled certification in Virginia in regard to three occupations.

The Vocational Education Thrust

Vocational education in the U. S. is large and multifold, encompassing both secondary (9-12) and postsecondary education. Secondary vocational education is offered primarily in comprehensive high schools and area vocational schools. Two-year public community and technical colleges are the primary postsecondary providers. In addition, a number of area vocational institutions and proprietary schools offer certificate, or less than 2-year vocational programs, as well as some two-year programs. Work-based vocational education is provided by employers through apprenticeship and corporate education programs. In the 1990 census, of persons aged 18 through 34, 43% took at least one vocational course offered by a two-year public college; 24% by a private provider; 19% by a vocational institute; 10% by a four-year college, and 5% by the employer (National Center for Educational Statistics, April, 1992). Students entering high school generally have a

choice of three paths of study 1) the academic path for the college bound, 2) the vocational path for the work bound and, 3) the general path for the undecided, whose program is designed around personal interests. The vocational path prepares the student for entry level work or continuing occupationally specific preparation at the postsecondary level. Vocational students going on to postsecondary occupational preparation can work toward a two-year associate degree, a certificate, or continuing their education to earn a baccalaureate degree at a four-year college.

America's Choice: High Skills or Low Wages! (1990)

Adult vocational education in the United States is provided in a variety of ways. *America's choice: high skills or low wages!* (1990) reported the following on how adults in the United States receive training beyond secondary school:

Each year, American employers spend an estimated \$30 billion on formal training--\$27 billion of that \$30 billion is paid out by 15,000 employers (one half of one percent of all American employers). At best, only one-third of this amount is spent on the non-college educated workforce, affecting no more than eight percent of our front-line workers.

The U. S. apprentice system, combining paid work with classroom and workplace instruction, is part of

just a small minority of front-line workers who benefit from extensive, long-term training. Apprentices are skilled workers such as construction tradespeople, operating engineers, and tool and die makers. Though worthwhile programs, apprenticeship programs serve less than 300,000 people at any given time.

National industry based networks of unions and employers often help design the curricula and provide the locally administered programs and standards with an infrastructure of support.

Though they were not initially designed to do so, state supported community colleges have had a major impact on adult vocational training. Today over 1,200 community colleges annually serve five million people in degree programs. More than two-thirds of the classes they provide are for adult vocational education.

Most states have created a variety of social programs for training to make economically disadvantaged adults job-ready or to help up-grade skills.

More and more public and proprietary educational institutions are becoming contract training providers to private employers and to public agencies.

The network of vocational training activities in the U.S. has been created as a result of unrelated educational, social, and economic development goals rather than from any overall vision of human resource development. These various and often unintended origins of the adult training and employment system have created a vast array of services, programs, and providers.

Thus almost all of the educational resources of the U.S. are devoted to the first 15 to 20 years of life. In the past, the assumption has been that little learning will be required during the subsequent 40 to 50 years of working life, especially for front-line workers. A outcome of the findings of *America's choice: High skills or low wages!* Commission and others has been the urging of the U.S. to completely reform the educational system, requiring all students to meet a high national standard of general education performance. These groups have also urged the U.S. to establish a comprehensive system of technical and professional educational certifications for the majority of students and adult workers, those who do not pursue baccalaureate degrees. These certificates of mastery would confirm competency defined as national standards for that field by business, union, and government bodies.

Voluntary Industry Skills Standards

Voluntary industry skills standards have been around for years to impose quality control on selected occupations. Various industries have approached regulations and development of skills standards in different ways. For example, Hudelson reported in *The Standard Approach* (1993) evidence of the following industries having standards and certification for their entry

level skilled workers. The automotive manufacturers formed the National Automotive Technicians Education Foundation to provide schools with information needed to develop curricula and lists of the tools and equipment required for approved programs. This foundation also provides certification standards that reflect the most current industry judgments of what automotive education programs ought to teach, how the content ought to be taught, and what equipment should be used for teaching. Visiting industrial teams of reviewers evaluate the programs; those that meet the standards are certified by the National Institute for Automotive Service Excellence. In this instance and in many other industries, the programs and not the students are certified.

Another approach is for individuals from business and industry to design a curriculum and other training modules for educational institutions. The Electronics Industries Association has used this approach for teaching fifteen different jobs in consumer electronics. A third approach has involved an industry-created national standardized examination or competency demonstration that can be administered by a school or a representative of the industry. For example, the American Welding Society has a national examination, which is administered by independent third parties trained and accredited by the American Welding Society to certify various levels of

welding competency. In most cases, industries that set national skill standards offer workers the advantage of nationally portable credentials.

Decentralization, Diversity, and Diffusion

The intricacies of implementing broad-based occupational-relevant standards, assessment, and certification in the U.S. make the task difficult. Many complex factors must be taken into account in the consideration of entry level skill standards and certification. The following major factors including decentralization, diversity, and diffusion were reported by Warnat (1992). Decentralization of certification and standards has always been the philosophy of the U. S. In its free enterprise system, business has insisted upon independence and minimal control. The focus of government is on states' rights and local autonomy with minimal federal intervention and control. Consequently, while all states are mandated to develop vocational program performance standards systems, there is minimal planned coordination. In a voluntary system like that in the U. S., businesses may or may not choose to participate. Many already have developed their own industry-specific skill qualifications; yet most have not.

An important characteristic of the U. S. educational and training system

has always been diversity. The lack of homogeneity in the U. S. mitigates against uniformity in process or outcomes where standards, assessment and certification are involved. No single "right way" exists. A multiplicity of approaches and models addressing them are in place and more are forthcoming. A holistic systems model might be appropriate. Yet, an underlying concern about the dialogue of mandating performance standards and entry level skills certification is limiting the occupational pathways of a culturally diverse citizenry. Therefore, an important principle is that all available pathways should be equally desirable and options kept open while still addressing the nations human resource needs.

Educational systems development in the U. S. has been and is still fragmented. The rapport between education and employment has often been nonexistent and even strained. Separate industry and school systems are being developed for standards, for assessment, and for certification. At present, extensive program and skill standards are being implemented by various groups without coordination or integration. However, the view is rapidly changing and a flurry of activity to establish a national voluntary system of skill standards, assessment, and certification is taking place.

NEW VISIONS FOR VOCATIONAL EDUCATION

Vocational educators read and hear almost daily about new visions for educational reform that are being proposed or are taking place in the United States and the fifty states outcome based education, tech prep, articulation, integration of vocational and academic education, performance or skills standards, applied academics, work-based learning, restructuring educational assessment--the list is practically endless. *The Carl D. Perkins Vocational and Applied Technology Education Act of 1990* (Perkins Act), U. S. Congress; *The SCANS* (Secretary's Commission on Achieving Necessary Skills) *Report for America 2000*, U. S. Department of Labor (1990); *Connecting School and Employment*, Council of Chief State School Officers (1992); and *America's choice: high skills or low wages*, The Commission on the Skills of the American Workforce, National Center on Education and the Economy (1990), are a few of the almost endless list of publications and organizations that are taking the lead in addressing the educational needs of the future workforce. Vocational educators in the United States are under increasing pressure to reform in order to provide occupational preparation that addresses current and anticipated workforce needs. The movement to implement performance and skills standards is a result of a call for

greater accountability in vocational education.

Over the past ten years, concern has also developed for the condition of the American economy as it is aligned to globalization. This concern has moved the United States into transition, acknowledging the interdependence between education and the economy. Linking education and the economy are workforce preparation and performance. One major outcome of this concern has become the proposed development and implementation of standards, including certification of occupational skills and competencies (Warnat, 1992).

Advocates for national performance and skill standards posit that standards would improve the U. S. workforce and produce quality in the international marketplace. These standards would also provide better vocational education and more portable employment credentials for U. S. workers. Increased accountability among schools, teachers, and vocational programs would also be an advantage of national performance and skill standards. *America's choice: high skills or low wages* (1990) suggested skill standards as a major reform for the education and training field. Before and since the publication was released in 1990, the U.S. Departments of Labor and Education have been studying industries that have developed national skill standards to determine how the government can encourage other industries to develop

similar standards. Vocational educators are seriously addressing issues within the framework of standards - program standards, performance standards, and industry-based skills standards (Warnat 1992).

The Perkins Act

The Carl D. Perkins Vocational and Applied Technology Education Act of 1990, passed by the U. S. Congress and administered by the U. S. Department of Education, is the primary federal legislative authority for vocational education in the United States. Under the Perkins Act, \$1.6 billion of federal funds a year is authorized for secondary, postsecondary, and adult vocational education programs. This \$1.6 billion represents approximately 10% of what is spent annually in the United States on vocational education. Every state receives federal funds for vocational education and is required to develop and implement an accountability system of core performance standards and measures for secondary and post-secondary vocational programs. Perkins regulations Section 115 of the Perkins Act requires that each state include in its performance standards:

1. Measures of learning and competency gains, including student progress in achievement of basic and more advanced academic skills.
2. At least one of the following performance measures:

- a. Competency attainment
- b. Job or work skill attainment
- c. Retention in school or completion of secondary school or its equivalent
- d. Placement into additional training or education, military service, or employment

According to Asche (1992), performance measures and standards can provide the opportunity for vocational education to communicate to employers, students, and the public many aspects of its contributions to education that have previously remained unreported. Performance standards and measures also provide an enhanced opportunity to document acquisition of occupational and technical skills required in the modern workplace.

The Perkins Act also authorizes the development of proposed national business and education standards for occupational competencies in select industries and trades. Thirteen national trade associations and education groups have received grants from the U. S. Departments of Labor and Education to develop and implement national voluntary skill standards in their trade or industry. The administrators of these grants have proposed that the national business and education skill standards should serve three purposes: improve standards of quality for less successful businesses; lift national industry quality standards to the same level as those of our best international competitors; and achieve accountability

for the widely differing organizations in the national education and training establishment (Vocational Educational Weekly, 1992, November). Some of the vocational areas receiving federal and industry matching funds for developing certification and standards programs are computer drafting; beginning and midlevel bioscience laboratory practitioners; health science and technology; printing (pre-press and press operators, scanner operator, plate maker, camera operator, etc.); electronics technicians; automotive, autobody and truck technician occupations; and air conditioning, refrigeration, and power industries.

Once performance and skills standards, at national and state levels, are available for the most frequently taught occupations and trades, government at all levels will have standards by which to objectively judge and compare the performance of public vocational education courses, community college courses, private trade schools, and public/private non-profit efforts (Vocational Education Weekly, 1992, November). These judgments and comparisons will be used to evaluate local vocational education programs and ultimately strengthen them.

Development of Business and Education Standards

Authority has also been given by the Perkins Act for developing proposed national standards for occupational

competencies in select industries and trades. The standards to be established include:

1. The major divisions or speciality areas identified within the occupation studied.
2. The minimum hours of study to become competent in those divisions or specialties.
3. The minimum tools and equipment required.
4. The minimum qualifications for instructional staff.
5. The minimum tasks to be included in any course of study claiming to prepare individuals for those select areas (Perkins Act, 1990)

The U. S. Department of Education effort is supporting a number of projects through matching grants that are to create a coalition of employers, labor organizations, vocational-technical educators and others to develop skill standards in industries and trades that will serve as the basis for a certification process including jobspecific, academic and reasoning skills. In addition these grants are used to develop methods for using skill standards for vocational-technical curriculum development and for certification; ensure non-discrimination of minorities and women in the application of skill standards; develop a means of determining the quality of performance of certified versus non-certified personnel; and to suggest means to identify and accommodate future skill standards at national and world class levels (Federal

Register, 1992). The U. S. Department of Labor has similar efforts underway and is providing matching grants for study of national standards in a number of the trades. The U.S. Departments of Education and Labor are working together to review jointly these efforts.

CERTIFICATION IN VIRGINIA

The focus of this section is how the state of Virginia certifies entry level skilled workers and how Virginia has addressed the mandate of the Carl D. Perkins Education and Applied Technology Education Act (1990) to initiate performance standards at local, city, and county levels. It will examine a vocation certified by a national board and licensed by a state board, how the trades and the state apprentice programs work together to certify certain occupations, and how programs are certified through the Virginia Community College System and national professional organizations. Specifically the occupations examined in detail will be dental assisting, welding, and automobile mechanic. Most entry level jobs do not require certification. For those that do, assessment and certification of entry-level workers in Virginia is voluntary for most occupations and almost as diverse as there are job classifications.

Before beginning the discussion of specific job assessment or certification

it is necessary to define licensed, certified, and registered, the three terms that are used to identify worker credentials:

Licensed

Shimberg (1985) defined licensing as a mechanism by which a legislative body determines for reasons of public health and safety, that individuals may not engage in certain occupations unless they have received formal permission to do so from a licensing board or from a similar government agency. Formal authority or liberty is given by the state to carry out a specific occupation or business. Further, Shimberg indicated that in order to be licensed, applicants usually must meet certain prerequisites, such as completing training in an approved or accredited institution, completing an apprenticeship period of supervised experience, and satisfying a board of their good character. After individuals have met these requirements they can sit for the licensing examination. The purpose of the examination, which can be written or performance or both, is to establish that the applicant is minimally competent to provide services in the area being examined. Since licensing has its basis in law, the police power of the state may be invoked to prevent unlicensed individuals from practising and to revoke the license of individuals who do not properly perform the duties for

which they are licensed.

Certified

One who has met the requirements of a state law and has been given a state certificate indicating that requirements of a course or program have been met is certified to perform the duties for which they have been trained and examined. Certification, like licensing often also has its basis in law, but program credentialing is voluntary. As with licensure, the certification agency usually required education, training, and experience prerequisites as well as examination requirements (Shimberg 1985). A major difference between licensure and certification is that licensing prohibits practice by unlicensed individuals, while certification does not.

To confuse matters, labels do not always apply. For example nurses are licensed, but they are called "registered nurses." Other terms such as brokers, underwriters, or diplomats add to the confusion of certification and licensure.

Registered

Registered is simply a way of recording by a board or association that an individual is performing a certain job. Many nurses of varying classifications are required to register with the state they are working in. In some occupa-

tions, the registered individuals do not have to meet certification and licensing requirements, while in other occupations they do.

KINDS OF STANDARDS AND CERTIFICATION

The basic methods for certifying skilled workers in Virginia are:

National and State Boards

Apprenticeship Programs

Industry Associations and Union Certification, both individual and program

National and State Boards

A number of occupations are regulated by national and state boards which have powers and duties to license, certify or register qualified workers. The Commonwealth of Virginia Department of Health Professions (1991) is an example of a Virginia agency that has a board with established purposes and regulations for certifying workers. The following are purposes for licensing and certifying health professionals:

1. To establish the qualifications for registration, certification or licensure in accordance with the applicable laws which are necessary to ensure competence and integrity to engage in the regulated professions.
2. To examine or cause to be examined applicants for certification or

licensure.

3. To register, certify or license qualified applicants as practitioners of the particular profession or professions regulated by such board.
4. To establish schedules for renewals of registration, certification and licensure.
5. To levy and collect fees for application processing, examination, registration, certification or licensure and renewal that are sufficient to cover all expenses for the administration and operation of the regulatory boards.
6. To revoke, suspend, restrict, or refuse to issue or renew a registration, certificate or license which such board has authority to issue for causes enumerated in applicable law and regulations.
7. To take appropriate disciplinary action for violations of applicable law and regulations. (p. 28)

In Virginia, members of health care regulatory boards are appointed by the Governor and include practitioners and health professionals as well as citizen members. The occupation of dental assisting that has both program and individual credentialing will be discussed in detail as an occupation that is certified by the Dental Assisting National Board, Incorporated and licensed by the Board of Dentistry, Virginia Department of Health Professions.

Apprenticeship Programs

Apprenticeship programs are regulated

under the National Apprenticeship Act, the Bureau of Apprenticeship and Training, United States Department of Labor. Apprentice programs are a coalition of management, labor, unions, and government that support a system combining paid work with classroom and workplace instruction. Apprenticeship programs are operated by employers, employee associations, or jointly by management and labor on a voluntary basis. The U.S. government's role is to provide support services to these program sponsors. The U. S. Bureau of Apprenticeship and Training works very closely with State Apprentice Councils and the educational system to deliver support services at the national, state, and local level.

Apprenticeships provide training in occupations that require a wide and diverse range of skills and knowledge, as well as maturity and independence of judgment. They involve planned, day-by-day training on the job and experience under proper supervision, combined with related technical assistance. Apprenticeship is a businesslike system designed to provide workers entering industry with comprehensive training by exposing them to the practical and theoretical aspects of the work required in a highly skilled occupation. Apprentices are skilled workers, such as construction tradespeople, operating engineers, and tool and die makers, who receive structured training on the job and in theoretical aspects related to their occupations. Presently, the U.S.

Bureau of Apprenticeship and Training recognizes over 800 occupations as apprenticeable. President William J. Clinton and his administration are focusing on apprenticeship programs as a means of training and retraining beginning and displaced workers in the United States. In Virginia, apprenticeship programs are regulated by the Virginia Department of Labor and Industry. Many of the same 800 Occupations (Bureau of Apprenticeship and Training, 1987) that are apprenticeable are also certified by industry based trade associations, unions and employer associations.

Industry Associations and Union Certification

National industry based networks of unions, trade associations, and employers help design curricula and provide locally administrated programs with standards, equipment, and other support. Most of these programs are in the trades and construction industry, including printing and graphics, electronics, and brick laying. Welding and automobile mechanic/body standards and certification will be discussed in detail in this paper.

Many industries, trade associations and unions provide training and technical certification programs for industry and schools as well as materials and technical information for training production personnel. These certifica-

tion programs are designed for students in vocational-technical schools, associate degree/certificate programs in colleges, and industry production operators seeking upgrade for their skills in a particular area. Most industry associations' and unions' educational programs are member-supported, nonprofit, scientific, technical organizations. Boards and committees form the advisory bodies and committees to write standards, certification and curricula. These boards and committees are usually represented by every facet of the industry they represent.

Certification provided by industry associations and unions are available to students on a voluntary basis in vocational/technical schools and community colleges and universities that have adopted industry association and union curricula. The training programs usually require the completion of reading and study assignments, laboratory/hands on operations, performance tests, and a comprehensive examination. Often, following employment, the newly certified worker is reviewed by a production supervisor at intervals. Upon successful completion of the knowledge and performance examinations and supervisory evaluation reviews, the intern receives the technical achievement certification.

Other Methods of Certification

Each year, U.S.. employers spend

billions of dollars on formal training. This training is provided by trainers employed by the business or may be contract training provided by private organizations. Many industries have specific skill requirements that are unique to that industry, therefore, that industry must provide the specialized training to certify workers. For example, a business that specializes in telecommunications may employ trainers to instruct new employees on the use of the telecommunications equipment and software packages that have been uniquely designed for that industry. The business also may employ in-house-trainers to educate employees on new technology as it is developed and to deliver seminars on changes in company policy and procedures. Outside training providers or consultants may be contracted to deliver specific training on a one-time or short-term basis. Outside contract providers may be public institutions like community colleges; proprietary educational institutions, such as a private business college; or businesses and consultants who specialize in contract training. Manufacturers of equipment as well as creators of software and concepts purchased by businesses also provide training for equipment and technology. This training may or may not result in certification for the trainee.

ENTRY CERTIFICATION OF THREE OCCUPATIONS

Automotive Service Occupations

In forty-eight of the fifty United States certification of automotive service occupations workers is voluntary. Only the states of Florida and Michigan require automotive service certification. Florida uses the program and individual Automotive Service Excellence (ASE) (National Institute for Automotive Service Excellence, 1992) technician certification and the state of Michigan has developed its own automotive technician certification. In Virginia certification for automotive service training programs and technicians is voluntary and only three schools in Virginia are certified by the National Automotive Technicians Education Foundation, Inc. (NATEF) (1992). Any secondary, postsecondary, technical institute or community college program, public or private, may apply for evaluation and certification. New River Community College's (NRCC. 1992-93) automotive program in Dublin, Virginia is one of the certified sites.

NATEF was founded to help vocational educators recruit, mentor and train automotive technicians. Through NATEF, ASE offers certification training programs. Automobile, auto-body, and medium/heavy truck training programs can earn ASE certification upon the recommendation of NATEF.

NATEF was also founded to develop, encourage, and improve automotive technician education. It examines the structure and resources of training programs and evaluates them against nationally accepted standards of quality in the areas of purpose, administration, learning resources, finances, student services, instruction, equipment, facilities, instructional staff, and cooperative work agreements. ASE is a non-profit corporation dedicated to improving the quality of automotive service and repair throughout the United States. ASE is governed by a Board of Directors that represents all sectors of the automotive industry as well as the educational community, government, and consumer groups. The primary function of ASE is to certify automobile, medium/heavy truck, body/paint technicians, and engine machinist.

The NATEF and ASE standards and policies are uniform throughout the United States and NATEF and ASE is the primary automotive technician certifier in the United States. Their standards and policies have been field tested and validated by teams of experts assembled under the auspices of the Automobiles Mechanic Training Evaluation Project, and directed by the Industry Planning Council of the American Vocational Association (ASE/NATEF Brochure). Automobile industry organizations, manufacturers, and automobile dealers contribute funds and expertise to NATEF to sup-

port the certification for automotive training programs.

Local instructors write their own curriculum but must include recommended procedures of the ASE and a specified number of class hours in each of the eight certified areas. Upon completion of the two year Automotive Analysis and Repair program at NRCC, students are awarded a diploma (Conversation with R. Papsidero, New River Community College, Dublin, Virginia, April 5, 1993). Students in the automotive program can become certified ASE technicians. ASE technician certification is voluntary. The certification consists of successfully passing a series of written tests (ASE, 1992). The tests measure diagnostic and repair knowledge and skills in nineteen technical areas. To become certified the technician must pass one or more test and complete two years of hands-on related work experience. One year of work experience will be given for completion of the two-year automotive program at NRCC. ASE's testing and certification program is administered by the American College of Testing (ACT), a non-profit corporation engaged in test development and administration and in education and vocational research.

Welding and Certification

Welding programs in Virginia and across the United States are designed to prepare persons for full-time employ-

ment in the welding industry. Neither the program nor the student is required to become certified, certification is voluntary. But, completion of a welding program at a secondary or postsecondary school provides the opportunity for a person to meet the necessary skills to become a combination welder, fitter-welder, GMA welder, GTA welder, or welder-fitter (NRCC, 1992-93). Unlike the automotive industry, certification in welding is granted by many organizations and institutes. The American Welding Society (AWS), The Hobart Institute of Welding Technology, and the American Society of Mechanical Engineers (ASME) are three of the primary welding organizations that set standards and policies. These organizations are usually non-profit, academic, dedicated to welding training and education, and have boards and committees that establish standards. These organizations provide training and/or welding certification for programs and individuals in the use and application of welding technologies; develop education and training materials for educational programs and the welding industry, and conduct research in the field of welding education. The AWS is the recognized professional organization for welding professionals in the United States and has established standards that are followed by welding educators such as the Hobart Institute. An advantage of becoming a certified welder is the transference of

welder qualifications from employer to employer without retesting. AWS standards are determined by the AWS Qualifications and Certification Committee under the direction of the AWS Education and Certification Council and approved by the AWS Board of Directors. All AWS standards (codes, specifications, recommended practices, methods, classifications and guides) are voluntary consensus standards that have been developed in accordance with the rules of the American National Standards Institute.

The Hobart Institute of Welding Technology (1993) is an example of a nonprofit proprietary training school that provides training at their Troy, Ohio location or Hobart instructors can take their training to industry. The Hobart Institute exceeds the educational standards set forth by the American Welding Society Code and is accredited by the AWS to evaluate the AWS certified welder program. The Hobart Institute also qualifies operators and welding procedures to the ASME welding codes. Upon successful completion of the welding program at Hobart Institute of Welding Technology, the student receives the AWS National Welder Certification. AWS standards establish the minimum requirements for welder participation in the certification program.

The American Society of Mechanical Engineers Rule-book Section 9 provides details for qualifying welders and welding procedures. ASME codes and

standards are determined by the Section 9 Committee. Changes and clarification made by this committee are forwarded to the ASME main committee and then to the Board of Directors for approval. ASME committees and board are composed of industry representatives (users, manufactures, inspectors), insurance company representatives, government agency representatives, and representatives from AWS.

ASME does not certify individuals or programs. Companies certify welders through their own quality assurance programs using ASME guidelines plus their own guidelines. ASME does offer a course for company managers, trainers and educators for interpreting Section 9. This course is taught by a member of the Section 9 Committee. Educators frequently adopt ASME codes rather than those of AWS because the ASME codes are basic and generic while AWS codes and standards are very specialized and specific to a particular type of welding (Conversation with Walt Sperko, Member Section 9 Committee, ASME, April, 1993).

New River Community College has a welding certificate program that can be completed in three semesters (Conversation with T. Alberts, New River Community College, Dublin, Virginia, April 5, 1993). Upon successful completion of the course, the student receives a NRCC certificate. The students follow a prescribed 44 semester-hour

credit program and must successfully perform hands on tests to receive certification. Unlike the AWS society certification, the NRCC certification is not transferrable from employer to employer. With the NRCC certificate, the student receives documentation of successfully meeting the welder codes for the shielded metal arc process, the pipe welding process, and the gas metal arc process. These three processes must meet the standards of Section IX of the ASME Code. The welding instructor determines the curricula for each course so that they meet the national welding codes and standard requirements. The codes are national and apply from state to state. At NRCC the welding students' qualifications are set according to ASME standards and testing recommendations.

Dental Assistant/Dental Hygienist

Dental assistants aid dentists at the chairside during examination and treatment of patients (Virginia Health Careers Council, 1992-93). They may perform laboratory procedures, such as assisting in the construction of dentures and models of the teeth and mouth and clerical duties. Dental assistants have the lowest level of dental certification. Like many other states, dental assistants are required to be licensed or certified in Virginia when their jobs require that they take, develop, and mount X-rays. For these

duties they must pass an X-ray certification examination. Dental assistants are also required to complete training and be certified by the Virginia Board of Dentistry prior to administering any Schedule VI topical drugs. They may be trained on the job in accordance with the Virginia Board of Dentistry guidelines or in formal one-or two-year programs with completion of an examination recognized by the Commission on Dental Accreditation of the American Dental Association. There are approximately 250 Commission-accredited dental assisting programs in the United States (American Dental Assistants Association, 1991). In Virginia, both community colleges and proprietary schools provide dental assistant certificate programs.

The Commission on Dental Accreditation of the American Dental Association (1980) is the agency recognized as the national accrediting organization for dentistry and dental related educational programs. The Commission is comprised of 20 members including representatives of the American Dental Assistants Association and other discipline accredited by the Commission as well as public representatives. To be accredited by the Commission on Dental Accreditation, a dental assisting program must meet the standards set forth by the Commission. The standards are national in scope and represent the minimum requirements for accreditation. The minimum standards allow institutions flexibility in the de-

velopment of their programs. There are five Dental Assistant programs certified in Virginia and one is at Wytheville Community College (WCC) (Conversation with Joanne Mitchell, Wytheville Community College, Wytheville, Virginia, March 31, 1993).

The dental assistant program at WCC is a three semester (one-year) program which prepares students to

- 1) perform the following under the direction of a dentist: chairside assistance, preparation of impression and restorative materials; exposing and processing intra- and extra-oral dental radiographs; laboratory and office management procedures; dental health education; recognition of oral and systemic emergencies; patient care as authorized by the Virginia Board of Dentistry; and
- 2) qualify the successful student to sit for the Dental Assisting National Board Certification Examination. (WCC Student Handbook, 1992-94, p. 57)

The Dental Assistant National Board (1993-94) provides examination and certification in the areas of infection control, dental radiation, health, and safety examination and certification in the areas of dental assistant, oral and maxillofacial surgery assistant, dental practice management assistant, and orthodontic assistant. Certification must be renewed on a periodic basis. A dental assistant who passes the Dental Assisting National Board Certification becomes a Certified Dental Assistant (CDA). Certification assures the dentist-employer that the

dental assistant is prepared to assist completely in the provision of dental care. There are four testing sites in Virginia.

While a dental assistant is not required by Virginia state law to have a license, the dental hygienist is. A dental hygienist is the next higher level of dental professional. Dental hygienists are preventive oral health professionals licensed in dental hygiene who provide educational, clinical, and therapeutic services supporting total health through the promotion of optimal oral health (Virginia Health Council, Inc., 1992-93). Dental hygienists are responsible for providing treatment that helps prevent oral diseases such as cavities and gum disease and for educating the patient. Both associate and bachelors degree programs are offered. Dental hygienists must be licensed by and are eligible for licensure by the Virginia Board of Dentistry after graduation from an educational program accredited by the American Dental Association's Commission on Dental Accreditation, and after successfully completing both a written National Board Dental Hygiene Examination and a clinical examination (Virginia Health Council, 1992-93). A licensed dental hygienist practices in accordance with the requirements of individual state dental practice acts. In Virginia, dental hygienists are not required to take continuing education courses to renew their licenses. However, dental

hygienists not performing or maintaining national and state standards can have their license revoked or not renewed.

CONCLUSIONS

Through the passage of the Perkins Act (1990) and mandates from the Departments of Labor and Education, the U.S. is working to establish a system of standards, assessments, and certification to better equip its workforce for the future. This is a difficult and long-term process that is just beginning. The complexities of implementing broad-based occupationally relevant standards with accompanying assessment and certification in the U.S. make drawing conclusions difficult at this time (Warnat, 1992). Warnat notes that many factors such as decentralization of the free enterprise system; diversity or lack of homogeneity that mitigates against uniformity; and diffusion or fragmented systems development between education and employment must be taken into account before a system of standards, assessment, and certification can be achieved.

Therefore, to keep America competitive and to better prepare its workforce, the ability to define occupational and academic skills through performance standards and skills, worker certification, and industry-based skills standards is vital. These standards will serve as the ticket to future security for

America's workers. Vocational educators can and must be leaders in determining what is to be expected of their programs and students and determining how to measure whether standards they set have been met so that the future reflects today's visions.

A glimpse into certification of three selected occupations in Virginia, which are representative of occupations in the United States, has just been offered. These occupations are only a tiny sample of many occupations in the United States. The decentralization, diversity, and diffusion that has traditionally affected the establishment job-specific national performance and certification standards also has had major impact on the way the job classifications in Virginia are certified or not certified. Substantive changes are taking place in performance standards development and certification requirements in the U.S. that affect entry-level occupations in Virginia. These changes are an outcome of research and the initiatives of new performance standards and certification mandates of the Perkins Act (1990). Thus, national occupational standards that are now voluntary may become mandatory and various occupations without certification standards may well evolve to ones with performance standards and certification requirements.

The fragmentation, diversity, decentralization, and diffusion of the past certification practices continues,

but efforts are being developed to view program standards, performance standards, and industry-based skills standards with a holistic approach. To provide a better prepared workforce and remain competitive internationally, vocational educators are determining what is expected of today's workers, how to meet changing program and individual performance standards, and how to measure whether students are meeting standards. The outcome of these efforts will be additional occupations with voluntary and required certification and licensure standards and procedures.

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PART III:
SOME GENERAL AND SPECIFIC
PROBLEMS OF THE EXAMINATIONS
AND EDUCATIONAL PROGRAMMES

FUNCTION AND DYSFUNCTION OF THE CERTIFICATION SYSTEM: CLOSED OR OPEN STRUCTURES

Matti Vesa Volanen

The educational system contains three paradoxes: (1) The trust/mistrust in the ability of labour market forces to express the validity of certification, and the trust/mistrust in the ability of schools to assess their own activities. (2) The labour and education markets are slowly but surely breaking down the segments built up by professions in certification, creating new segmentation reflecting the recruitment policies of companies, which is characterized more by labour price flexibility than vocational flexibility. (3) In the education market the demand for education is expressed by those who themselves have been schooled. There is resistance to believe in this, however, for independence and autonomy are expected as a result of the education. (4) The more flexibility and productivity awareness is demanded by production units, the less able we are to motivate and analyze the worker in terms of their identity purely through occupations. The "corporate identity", as an alternative, destroys flexibility.

The following principles can be seen for educational policy: (1) The principle of open structures and options. (2) The flexibility in vocational education implies the ability to cope with open, complex work situations. This assigns a central role for sufficiently open knowledge and skills (3) The concept of educational market faces the fact that demand for educational services is created by the image of the necessary education by the trainees themselves, and only indirect influence on that demand is possible. Descriptors: vocational education, general education, labour market.

EXAMINATIONS, CERTIFICATION AND ASSESSMENT - definitions and questions

Examinations, certifications and assessments can not be distinguished

from each other. If you separate one from the others you will have several problems and questions with the other two. At present, the conflicts and agreements in the policies of control and labour are crystallized in certification. In examinations I see the emphasis not

on conflicts but compromises of educational policy. In assessment it is a question of essential importance to put into practice both the former organized actions and operations.

The task for *examinations as qualifying programmes* is at least threefold. First, the main task is to construct the human factor of the production process from the viewpoint of production and the worker. There are two goals: There is the goal of *identifying* the qualifications which are demanded by the production process and the formulation of jobs, and the goal of matching production needs with workers who have corresponding skills and knowledge. On the other hand, there is the need to build up the *vocational identity* of the worker.

The second important task for examinations is to systemize educational markets, to become viable and as transparent as possible.

The third main task is diagnostic both for the students and colleges: whether the goals which are set are reached or not. To make the examinations real, there are two basic options: to be *either* controlling and/or stated after the learning results, *or* part of the learning process and its goals. The controlling and directing aim of examinations is organized most often by parties who are outside the education.

The *main task for certification* is threefold. First, it carries a message between three very different social institutions - colleges, labour markets and

production units - stating what the person that has the certification can do.

The certificate expresses, or at least tries to express, the qualifications determined by the examination. The problem is communicative: how much time and effort can be used to identify the performance. At the moment there are two basic models used in Europe:

1. Contract Model. The countries of Europe will agree regarding competence and authority of certification. The person having the certification is formally qualified to perform the tasks of the occupations mentioned in the certification.

This model is based on the trust that the participants have in each other. The basic question is which certification the applicant has. The certificate is enough to determine the qualifications of an applicant for acceptance to the job. In other words, no additional testing of skills is needed. The problem here is the speed of the developmental work of examinations which is taking place in different countries. International directives will take a lot of time to produce, maintain and inform about, will be a lot of trouble, and will take a lot of money.

2. Transparency Model. The concern is not on the examination, but on the question "what can you do?" We can try to find answers to this question in two ways. We may check the history of the applicant regarding education,

training, and working experience. The other possibility to be used might be, for example, a three-month probation period during which time the range of competence is checked.

This model is not based on trust but on the marketability of the applicant. Applicants cannot show any formal examination of their competence but have to prove their skills in practice. The basic problem is how the prior educational and working histories are recorded and assessed.

The *second* basic task for certification is to make the control by labour and educational markets possible. The certificate gives permission to have a place after education in the production market at that educational level which is shown by the education or training. The names for examinations divide the educational markets, both the areas of speciality and stages to segments, which can be adjusted with active educational policy. In the same way, the labour markets are structured into segments, the limits of which can be regulated¹. To control this flexibility there are two mechanisms: vocational substitution and vocational mobility. By substitution, I understand to what degree a certain occupation tolerates workers with different kinds of training and working experience. Mobility, on the other hand, is how much the worker tolerates different kinds of jobs.

We have to notice that these two mechanisms are dependent upon each other. What is gained in vocational

mobility can be lost easily if the criteria of vocational substitution are changed and vice versa. Of course, the limits of flexibility are essentially dependent upon the degree of unemployment.

The regulations of educational and labour markets are possible only with market locks. The examinations of education and the expressed certificates will lose their meaning to define the locks if transparency thinking has a stronger effect on recruiting workers.

The *third* task for certification is to express the applicants' (supposed) base of vocational identification and how one is related to different jobs and salaries and how one is regarded as an applicant. Certification states the starting point in vocational markets and recruiting, and it begins the process of vocational identification and identify.

Assessment refers to the technical measurement with which the competence is identified. Thus, there are two questions to be solved: What is the measuring point and how is the measure to be determined? We may have three types of measure points:

- The performance of other students (norm based)
- Reaching the goals set previously (criterion based)
- The progression of learning processes (competence based)

Very often ideas of competence are seen as expressing mastery of separate vocational tasks. Task competency is

thought to be like the traditional master tests of guilds. Competency is, however, a clearly wider and richer entity. It emphasizes the features of the learning process. For example, how the competency is expressing the readiness to master open and undefined situations or how the competency is appearing as social literacy.

We have at least three different problems:

- 1) the demand to outline the needs of the human factor of the production process which is expressed through examinations;
- 2) the problem of the relationships between labour and educational markets and production units which are expressed through certification;
- 3) how the problem of the measure point and measure is solved in assessment of vocational competencies.

Our questions will be: whether the examinations, certifications and assessments will form a closed functional structure and prevent the development of human resources or an open structure when the open options are produced for schooling? Is the human resource development strategy for closing or opening educational options?

OCCUPATIONAL IDENTIFICATION

It is the function of certificates to enable people to identify individuals on the basis of "skills". They also enable people to be differentiated from the concept of citizenship and perceived as a part of the labour force. Certificates:

1. facilitate the legitimization of social differentiation on the basis of education (the level of education),
2. facilitate channelling labour to various fields of industry by way of the employment market (field of education),
3. facilitate the regulation of social mobility; withdrawal and defining channels between and within the working and middle classes,
4. outline the fields and hierarchies of production for those who are undergoing education, thus constituting the basis for the formulation of a vocational identity.

The debate on certification and examinations expresses and conveys the pressures for change on the interrelationships between various social institutions (such as schools, the labour market, the education market and production units). The certification has different significance and roles for schools, the labour market, production units and the education market. The relationships bet-

ween these institutions determine the importance and the roles of the certificates. The significance of certificates is thus different from the point of view of the person taking it and from that of social institutions.

From the school's point of view, the certificate is the result of its operations, its end product. From the labour market's point of view, it is a identification tool for the categorizing of labour and for regulating professional mobility. From the production unit's point of view, the certificate represents the starting point of the occupational process. When there is a prevailing shortage of labour for the production process, and qualified labour is required, a certificate is a way of identifying this qualification.

The response of production units to the human factor of production may be categorized as follows:

- people are labour *force*
- employees are *qualified* labour force
- employees are the *human capital* of the subject of investment
- employees are the most important *resource* for production

The last-mentioned is significant in that it admits that the financial result is primarily linked with the human factor. In other words, other factors of production are not renewable and rapidly decline in value unless they are bound to the human factor of resources.

Naturally, these points of view coexist in everyday life, but there is also

a perceptible change of emphasis from the concept of labour towards the notion of resources. This also means that the production units have little by little been obliged to commit themselves to terms set by an increasingly complex human factor in their acquisition of labour. Naturally, they have struggled against these to the last. One way of achieving this is, of course, the constant expansion of the labour market area. One key feature lies precisely in this in Finland at the moment: the major companies engaged in international competition are breaking loose of the domestic labour market and the terms set by it in order to create business opportunities in "more flexible production". The chief aim is to break free from all the human limitations in recruiting labour while also creating flexible productive capability which will be based increasingly on that very same human factor.

From the labour market's point of view, the aim of the production units is

- 1) to ensure a sufficiently wide and qualified basis for recruitment,
- 2) to promote the labour market's segmentation to correspond to the hierarchical division of labour that prevails in manufacturing,
- 3) to minimize the effect of the labour market on the price of labour,
- 4) to break down all other restrictions on the flexible recruitment of

labour.

The production units thus seek to limit and prevent the formation of "detrimental" labour or educational markets in respect of the market.

The building up of a vocational identity has almost antithetical objectives to those of occupational identification: it seeks to make concrete (diversify, enrich) and realize citizenship and humanity in relation to other people and nature. The starting point for formulating a vocational identity is a holistic, overall concept of "the world" and "working life",

which is diversified, made tangible and realized by means of a profession. The systematics of professions thus creates a totality by means of which the surrounding reality can be analysed with very personal questions. One's own status, and an understanding of how to achieve that position, is also outlined at the same time.

In the following section, I will go into the interrelationships between the vocational identity and occupational identification in a unit comprising the schools, production units, labour markets and education markets (See Figure 1).

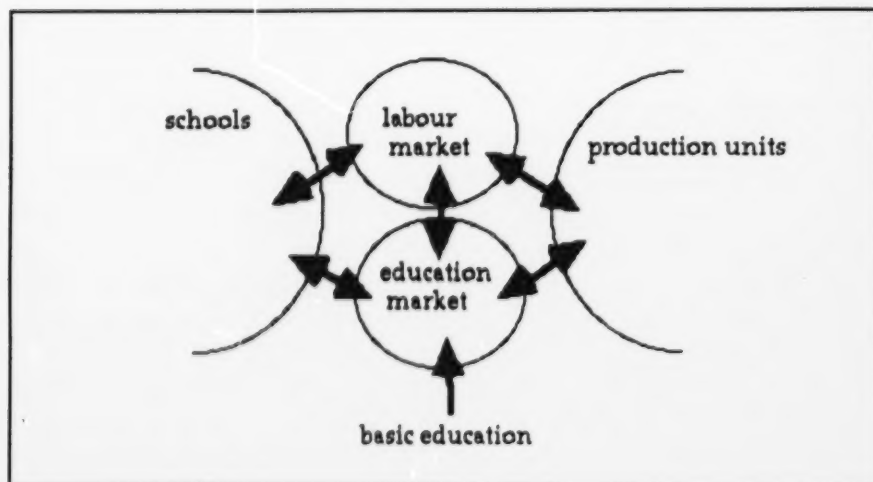


Figure 1. Interactions between education and working life

In the market economy countries - whether the schools are public or private - the students go through "markets" as they come to and emerge from school. In this connection, the term markets is used to mean a state in which contracts more or less decided by the subject of education himself or herself are made. The contractual relationships are certainly not made on an equal footing, especially in respect of the labour market, as the participants are most often an individual on the one hand and a production or educational unit on the other.

However, the person who is educated, or who is to be educated, is in a different position on the markets for labour and education: on the labour market s/he is selling his/her own labour. The terms are hard: The person is frequently obliged to sell, and there is seldom much room for negotiation over

terms. On the education market, on the other hand, s/he is purchasing a personal future by means of education. S/he can do it either with his/her own money or with a "voucher" provided by the state. The degree of freedom to purchase varies in different countries, as does the extent to which the individual is obliged to invest his/her own money in education and to earn a living during it.

All the above-mentioned institutions - the schools, labour market, education market, production units - and individuals perceive vocational identity and occupational identification relative to their own interests. A vocational diploma and a professional title are in a way a kind of "semitransparent reflective surface", through which institutions and the students try to interpret each other (see figure 2).

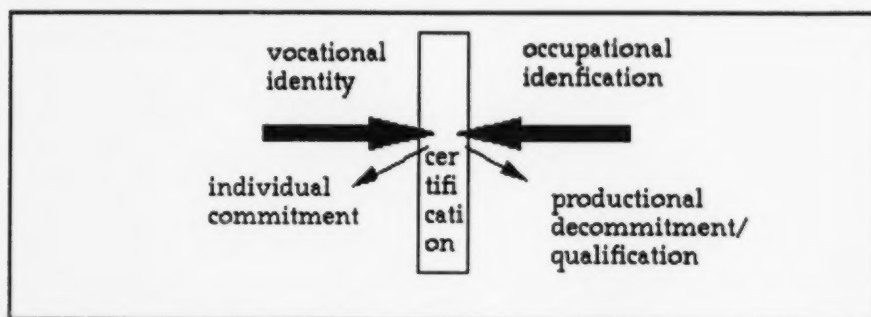


Figure 2. Vocational certificate as a semitransparent surface

As I said earlier, an individual assumes different roles in the educational vs. the labour market. In the latter he is selling his own working capacity, whereas in the former he is buying educational services for himself with a state "voucher". A person, therefore, has to decide whether he accepts his qualifications/salary/quality-of-work criteria, or whether he has to make a transition to the education market. In so doing, the economic and social expectations are decisive.

The decentralization of educational planning and decision-making will necessarily result in the emergence of some form of educational market, which is apt to break the boundaries of the heavily compartmentalized situation typical of to-day. The educational market forces will create pressures which tend to dissolve the tightly entrenched segments based on the level and the field of education received. This means that the education planning machinery will lose almost all of its main tools. Perhaps the only remaining ones are found among various examinations and their administration, as well as the related powers of control.

According to observations, young people will not make their educational choices according to signals from the labour market, but their occupational orientation is based on other factors. This will result in undue pressures on higher education. The question remains, what will be the role of the educational and labour markets in determining the direc-

tions of the structural, the quantitative, and the content orientation of education.

The traditional point of departure in educational developments has been the accounting for labour market signals in quantitative planning. This model of planning has several problems, for instance:

- The signals coming from the labour market usually change too quickly to be functional for educational planning.
- The signals concerning the production process on the one hand, and the labour market on the other are often incongruent and even conflicting.
- In taking educational decisions at the individual level, labour market considerations are but one - and not necessarily a central - factor among the reasons considered. Personal attitudes may deliberately even play down their role.

The needs (for e.g. labour force) indicated by the labour market are often different from the educational needs indicated by the students themselves. The question remains what is the role and importance of the educational market forces resulting from the educational needs expressed by those to be educated.

THE ISSUE OF EXAMINATIONS AND ASSESSMENT

Examinations are of central importance for the entire education system. They represent a manifestation of the goals and outcomes of education both to the student himself, and others (e.g. receiving educational institutions and employers). Examinations are also an instrument for evaluating and steering the system. The trend of moving the center of gravity in decision-making towards colleges through administrative decentralization underscores the importance of examinations as a vehicle in the assessment of the successfulness and effectiveness of schools. When at the same time certain ideas are entertained about making school resources dependent on the successfulness of their activities (as indicated by e.g. examination results), this is apt to challenge the schools with entirely new demands.

One consequence of an enhanced emphasis on examinations can be the birth or development of systems of performance based examinations. This will create further problems: the development work and its validity assessment are a slow and expensive process. Furthermore, the content control aspect is likely to involve several societal interests - especially within the vocational domain - which later on will constitute an impediment in further development of the examinations.

Also in the development process certain pressures exist for seeking their

basic rationale from existing occupations (in vocational education), or disciplines of knowledge (in general academic education). On the other hand, there may exist tendencies of regarding the entire examination simply as a collection of successfully passed learning units which do not necessarily constitute a particular, pre-conceived entity with either vocational or academic rationale.

Assessment is a means of measuring the objectives set for education. Assessment can be divided into the internal and external in respect of education. *Internal assessment* is based on the teachers and the schools as well as on co-operation between the teachers. It rests on the concept that the assessment of student success should also be a means of developing the curriculum. *External assessment* reads from the success of the students whether the curriculum should be extended or not. Assessment may be based on a nation-wide examination carried out by the state authority, on co-operation between the collective bargaining organizations or on evidence supplied by the labour market as to the validity of certification.

The criteria for decision-making in assessment may be norm-referenced, criterion-referenced or competence-based:

Norm-referenced assessment is based on the placement of each individual in respect of the distribution of results. Norm-referenced internal assessment is based on the curriculum and relies on the teachers' ability to make assessments.

It compares the students with each other, without necessarily setting an absolute quality level to be passed.

Criterion-referenced assessment seeks to define what each individual is really capable of, focusing on whether the individual's performance fulfils preset criteria. It is based on setting a precise criterion for knowledge and its exposition.

Competence-based assessment seeks to demonstrate the student's knowledge and skills in a real working situation, which is most often more open and complex than can be achieved in criterion-referenced assessment

The idea of competence-based assessment emphasizes the openness of work tasks and working situations, i.e., the examination must be constituted in such a way that it proves mastery over the open situations which occur in work. The learning process is interpreted in a contextual and constructive way; i.e., the learning is invariably bound to the situation and environment in which it takes place. Furthermore, the core of the learning consists of the construction, the production, of something new. Thus, the results of learning cannot be separated from the learning method and situation. Competence is therefore 1) the mastery of open situations, 2) productional and social literacy², and 3) the mastery of contextualization.

There may be four different "parties" in external assessment: the labour market, the education market, the state authority and the social partners. The la-

bour market sends feedback to the schools on how successful the education has been, how the students have found places in working life. The education market supplies "feedforward" on demand for education. The schools must interpret these communications in order to optimize their own activities.

OPEN OPTIONS AND VOCATIONAL EDUCATION

Vocational education often bears the stigma of being the second best alternative after leaving basic education. Therefore those who continue in the vocational sectors, may experience it as a failure. One may alleviate this stigmatization by ensuring a general eligibility for continuing (and especially higher) education to those proceeding through this channel. But again, if this would be too straightforward and happen very frequently, there would be the danger of using vocational programmes as a roundabout way of access to university education.

Changes in the general task of vocational education and the demands they set for institutional changes constitute the main points of departure in the development of youth education. Some of the basic motives have to do with their relationship with university education: is it not conceivable that changes in vocational education would diminish the pressure on higher education? In this connection one tends to refer to signals

from the labour market, which cannot, or will not, be interpreted in the "right" way.

Here we are faced with two contradictory aims:

1. Vocational education and certificates ought to be equally highly valued as the general education programmes, i.e. those choosing it should have available an equal number of open educational and life options as those proceeding through the general education channel.
2. Vocational education should not become just an intermediate stage on the road to university studies, because this would create an instrumental relationship between vocational education courses and actual vocational skills. Consequently, one would expect those who have made the vocational choice to stick to their choice and exclude other open options.

It seems that a person's choices after basic education are determined by his/her level of school achievement, the level of education attained by the parents, and an idea of the so-called *open options* - in other words: a preference for choices which open up a maximum number of opportunities at the next stage. For youth, the general education programmes are those that reinforce this model of schooling.

It is interesting to observe that the

idea of *open options* is quite often considered as freedom to postpone the decision on occupational choice into a more distant future, and not vice versa, i.e. as a possibility to choose first one's vocational orientation and only afterwards one's eventual level of attainment. In educational planning one is currently searching for organizational models which would allow keeping both the "vertical" and the "horizontal" dimensions open, and not blocked by once-and-for-all final solutions.

PARADOXES AND POLICY PERSPECTIVES

On the basis of the review above, we arrive at the following paradoxes:

1. The formulation of vocational identity and the definition of occupational identification cancel each other out. This is the case if they lack a sufficiently legitimate form of publicity which is based on the systematics of occupations. The labour market and education market, however, erode this legitimacy.
2. Those who emphasize the external assessment of certification by state and/or labour market bodies do not trust the ability of labour market forces to express the validity of certification, nor do they trust the ability of schools to as-

sess their own activities. Assessment is primarily a question of mutual trust between schools and production units. The production units wish to regulate the work of schools directly, and not by means of the market. They therefore wish to minimize the effects of the labour market and education market. They therefore operate in contradiction to their own principles.

3. The labour and education markets are slowly but surely breaking down the segments built up by professions and certification, creating what is primarily a segmentation reflecting the recruitment policies of companies, which is a reflection more of labour price flexibility than of vocational flexibility. The social transparency generated by the systematics of occupations and the possibilities for analysis are being undermined.
3. The criterion for the education market is the demand for education expressed by those who themselves are being schooled. However, there is resistance to trusting in this. However, independence and autonomy are expected after the education.
4. The more flexible, the more productivity-aware that the labour required by production units is,

the less we are able to motivate and analyse worker identities purely through occupations. The "corporate identity" which is proffered as an alternative destroys flexibility.

5. The demand for open education breaks down the present twofold semi-education which is based on the contradistinction between academic and vocational education. The result could be a third form of semi-education, which releases us and our actions from objectives and meanings as well as from actual means.

To sum up, we can see the following principles for educational policy

- (1) **The principle of open structures and options.** From a learner's point-of-view, the education system should be open. Instances of choice and selection shall be so arranged that they open up new opportunities at the next decision point. All erroneous choices should be remediable without undue personal losses. Thus the structure of education should be based on (broad) programmes of learning, rather than a narrowly conceived study-line rationale.
- (2) The aim of flexibility in vocational education implies the ability of coping with open, complex work

situations. This assigns a central role for sufficiently *open knowledge* and skills. This again presumes a new kind of integration of academic and vocational education - new conceptions of citizenship and expertise.

- (3) **Education market, labour market, and social partners.** The notion of an educational market is contradictory to the three-partite idea of educational regulation. When adopting the concept of educational market, one comes to face the fact that demand (for educational services) is created by the image of the necessary educa-

tion by the trainees themselves, whereby only indirect influence on demand is possible. In the long run, therefore, the steering of the content of education and examinations by the principle of social partnership will become more and more problematic. In that situation, the educational needs signalled by the labour market will not constitute an adequate basis for educational planning. It will then become necessary to create a new kind of *modus operandi* among the representatives of the educational market, labour market, education units and production units.

1. The segments in education and vocations are only partly overlapping with the labor markets.

2. In my opinion, the best description of the above changeover has come from Kazuo Koike. His thesis is simple: professional skills are the ability to improve profitability, or, in other words, the "horizon" that creates meaning for the professional skills of a worker in a production unit is profitability and the ability of each worker to relate proportionately his/her specific know-how and capability to this horizon, otherwise it has no significance to the production unit. Professional skills are bound to the working community's success and survival, so they are at once very tangible but also common. The tasks set for them are immediately and invariably visible in every task, but the challenges are very open too: they can only be perceived with sufficiently open conceptual equipment. In this case, the work process must be developed in the limited sense of the word: one needs constantly to relate proportionately one's own specific knowledge to the production unit's functional totality. The dynamics of development would be formed precisely from the effort to develop "production literacy" and the "economic contextualization" in one's own work behaviour. The behaviour thereupon takes on such concrete forms that the eyes, ears and hands are no longer enough, and the "eye glasses" that language greates must be developed. Naturally, it is a separate question as to how concretely we define "productivity". To what extent will environmental and socio-economic indexes be bound up in this? This remains to be seen.

See Koike K. 1988 *Understanding Industrial Realitions in Modern Japan* London: Macmillan,
Koike, K. 1989 Human resurse development on Japan shop floor in contemporary Japan. Paper presented in OECD & al. Conference "Japanese employment in the Context of a Economy and Society Paris 30-31 October 1989.

PROBLEMS OF CERTIFICATION AND EXAMINATIONS IN DIFFERENT OCCUPATIONS

Matti Taalas

Pilot groups have worked to form the first competence based occupational examinations in Finland. How the formation of the new exams is done, what are the background thinking and the structure of the examinations, and how can the vocational skills be assessed? The article presents a theoretical structure to conceptualize the examination the vocational certification can be based on, and pays attention to the bases on which the modularization of the examination in the work of the Finnish pilot groups is built. Descriptors: Vocational education, adult education, assessment of vocational skills, examinations.

OCCUPATION AND VOCATIONAL SKILLS

The concept of occupation is related to its institutional background, and has different contents depending upon whether we are dealing with a working organisation, entertainment, production life, labour market, trade union or vocational education. In the following I will focus on the concept of occupation related to production of an organisation, and define vocational skills from that point of view and in that context. I refer to a vocation and vocational skills as a common feature of a group of people working in the same occupation

as skilled workers and producing by their skills in the working organisation. The results and target of their working are the goods and services produced.

Vocation consists of occupations formed in production, and the occupations are described through the combination of jobs, which have separately defined targets. These jobs can be further divided into tasks, which have the same action goals as the tasks or they are chains of actions the worker needs to master. The worker has to know enough about the production unit and the occupations in it, and about jobs and tasks in order to succeed in the work and to have the required

skills to take part in the production. Otherwise s/he will not be called 'skilled' in the working organisation and in the occupation.

The word 'routine' has several meanings: A repetition of operations ('daily routines'), a well exercised skill ('he works with routine'), and tiresomely uniform, unvaried or stressingly repeated behaviour. *Vocation is built around the repeated patterns of the actions* in producing, and just the repetition forms routines. A vocation is formed by occupations with repeated jobs and tasks. The quite constant combination of these is the core of a vocation, and *the demand for the worker is to master the routines of the vocation*. Certain rules fix the repetition in a vocation and are needed to structure the vocational situations (to define even what is vocational and what is not), and these rules must be known to be able to solve the problems. The bases for the rules are specific to each vocation. There are similarities in the bases of different vocations and those common bases create families of vocations.

An unskilled worker attempts to solve vocational problems without the knowledge of routinized acting patterns, the skilled worker answers with her/his routines and structures the situation according to the old and familiar models acting like in the same type of cases, which s/he has carried out before. A skilled worker can be described as a person, who creates a

structure (finding routines) in the chaos of performing demands as it seems to those, who are not vocationally qualified. This thinking will put the question of a vocational skill into a form of readiness to respond to action demands by mastering the rules and structure of repetitive routines.

When we are speaking about the *level of vocations like 'higher vocations' or 'technician level' or 'lowest level vocations'* the dimension of occupational-professional tells us, *how the bases of the rules of the routines of that vocation are fixed*. They can be fixed by concrete production in the organisation or by professional workers themselves from inside the profession. The identifying routines in professions is based on science, education and training.

Vocational skills can be seen in solving vocational problems, and those skills become especially visible when one is acting on the edges of ordinary routine. As outsiders of the occupation we may regard this as non-routine and unique behaviour, because we do not recognize the repetition. The more skilled the worker is the rarer routines s/he masters, and the greater demands inside the occupation s/he structures and rules by her/his skills. On the high performance level, exceptional routines are demanded both in forms of speed and level. *Skill as an enlarging competence pushes the borders of occupational routines further away from the basic core routines of a vocation*. As said be-

fore, vocational skill is best seen on the borders of those routines, but the lack of it, by contrast in the lacking mastery of the basic routines. That is why the vocational skill is different by nature in the core of a vocation from the skill at the top of a vocation. *Among the core routines we can search the basic qualifications of a certain occupation (entry level vocational skills), and the wider and deeper competence is found near the borders of the vocational routines.*

When production changes, routines also change. They will no longer be routines because the operations repeated have disappeared and new routines are created by the new demands of the new situation. In different types of production units the division of work varies, and the vocational qualifications differ between the occupations in the same vocation. The problem in the vocational education of skilled-worker level occupations is to select the routines, which are thought to students to master. These routines should be selected in such a way that the variety of skills will be flexible enough for mastering the routines of different jobs in several specific occupations, which are assumed to exist at the present and in the near future. Vocational education also needs to adapt to the forecasted changes of production. The same demands can be set for the examinations and certification in vocational education and training.

DIFFERENCES BETWEEN OCCUPATIONS

A simple way to analyze work is to pay attention to the materials, tools, methods and products the worker deals with. Those aspects are commonly used to form the occupational routines, too. A skilled worker has to decide which materials to use, with which tools or machines and how, how to proceed in his work, and what is the product and the demands for it. In divided production, the routines concentrate on some part or phase of the production, and so do the vocational qualifications for the workers.

The object of working and work-analyses seems more abstract in service occupations than in producing goods. A client cannot be compared with materials, and the produced service - that 'product' which is experienced by clients - is easy to say but difficult to define. The work itself is a combination of finding out the client's wishes in the serving process, and the actions expected by the client. Communication skills are at least as important in services as the machines or equipments. The situation becomes more complicated if someone else is paying for the service than the one who is served, like e.g. in social and community services or nursing. Which one then is the client, the payer or the receiver? In a sense both, but how? A worker in a service occupation has to know the client's point of view as a

starting point for determinations of goal setting to plan her/his activities in the work. The routines are formed and fixed more personally and freely according to worker's and client's individual choices and agreements. The vocation itself does not determine exactly how the routines are formed, or what the exact bases are for them, and the routines can be varied just to avoid the boredom of routines in service. The worker is using her/himself as a tool in the communication and has to be aware of her/his own reactions in the service process. Partly for the same reasons it is difficult to divide service occupations into separate jobs and tasks is difficult. A client who has been served mechanically and non-personally may feel to have no service at all.

Service is becoming a part of many occupations. The difficulties of creating 'rational routines' in service have introduced the problems of service occupations to many originally pure technical occupations.

The different types of qualifications may compete inside the vocation. A truck driver is required to drive safely in the traffic *and* to have skills for route planning, *and* look after the car. We also require the truck driver to have some skills in social communication *and* awareness of clients' wishes. For profit in private enterprise - making money - the service of clients is essential for a driver, and the lack of social skills is seen by everyone and everyday, but the safety of driving only

in quite rare and exceptional situations.

THE MODULARIZATION OF THE EXAMINATION OF SKILLED WORKER

The assessment of vocational skills in a wide and flexible manner, which suits to the varied occupations of a vocation and to the perspective of future changes in production, puts three demands for vocational examinations:

1. Vocational skills are defined in relation production life occupations. The definition has to happen in co-operation with working organisations and institutions to counterpoise the vocational education system.
2. In vocational examinations The basic routines are to be defined and included in the examinations, or at least, the working situations have to be described which all are to be mastered (basic qualifications) for entry as a worker into production life.
3. The level of performance in examinations is defined by the breadth and depth of vocational readiness (competence), which is seen in the rareness of vocational routines performed on a certain level or with certain speed.

The first demand is fulfilled when the production life is involved in writing the examinations, and if the production life is capable of expressing the routine demands as jobs and tasks, and the changes in them forecasted in

the near future.

The exams are modularized according to the routine areas, and vocational behaviour and performance is assessed according to general vocational qualifications. For example, the performance - options, solutions, reasoning or choices - are evaluated in respect to their scientific, logical, safe, economical, time sparing or exact value.

The third demand consists of the boundaries of routines and breaking these boundaries by searching and finding new original solutions. This level of competence, which can be called expertise as well, is reached ordinarily

by working in the occupation and by vocational experience. It consists of the vocational routine system reinforced and acquired on the jobs when the boundaries are tested. A part of this expertise is the integration of person's own vocational behaviour system and conceptualizing the relationship between the vocation and the different institutions and organisations which are connected in it. The formation of the competence begins from the first experiences within the occupation or vocational education and continues in working-life.

The structure of an examination can be figured:

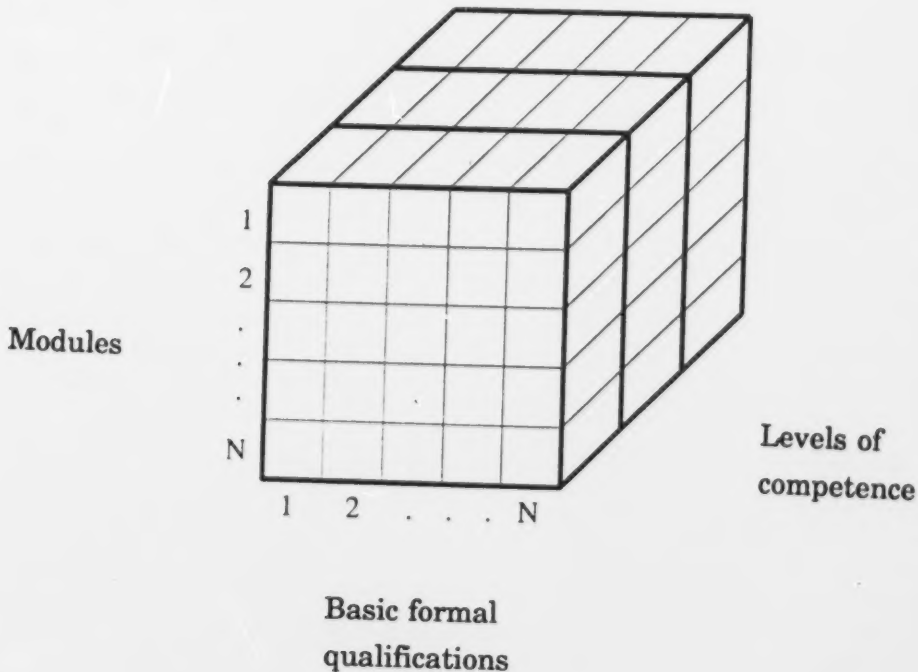


Figure 1. *Model of Competence Based Examination*

THE IMPLEMENTATION OF COMPETENCE BASED EXAMINATIONS IN FINLAND

Piloting of the new adult examinations

The first new type vocational adult examinations were carried out in Finland in the spring 1991. The competence based exams for the occupations in building and wood industries were among the first completed. During 1992-1993 and about 30 different examinations were planned. The strategy was to form pilot groups under the supervision of the adult education department in the National Board of Education. These groups were offered subject-courses and tutoring while they continued working. The Ministry of Education had worked out an initial paper about competence based examinations during the summer 1992, and it became the basement for the working. The contents of the examinations and the ways of implementation were left free for the pilot groups to adjust to the particulars of the production life, to the nature and tradition of occupations and to assessing vocational skills. The adult education vocational colleges were also asked to contribute in the planning. The piloting work ended in testing the new exams in practice. A research project was set up to follow the piloting phase in order to gather data and analyse them for further planning and

decision making by the National Board of Education.

The preliminary reports from the pilot groups were due in autumn 1992 and the final reports at the end of January 1993. The groups worked unevenly and only few met the deadlines. The amount of work in the pilot works were different and the models for implementing solutions varied, which made the task and demands different for each group, and the stage of readiness varied from group to group.

A questionnaire was presented to the working groups in December - January to survey their progress and future plans. Answers were requested concerning 26 exams, and 20 were represented in the returned questionnaires. Some of the groups had completed the first final testing of exams, some also had the final report ready, but some had just begun their work late in the autumn 1992.

The final reports were gathered for the analysis in March 1993. If the report was not ready the preliminary report was used for this research. The reports were available for 22 exams. In the first phase, the strategy of modularization in different exams was in focus in the survey.

Some of the questionnaire results and the final report contents are discussed in the remaining part of this paper.

Modularization

The amount of modules varied from 1 to 8. The most common base for the modularization was a self made occupational analysis, which was enriched with projected future demands of the vocation or forecasted changes in the working environment. Some common combinations of bases for modularization were: Discussion in the group, and then developing the first draft. The second phase included checking and comparing the modules with the existing curriculum and then preparing the second draft. The final checking and comparison with working life demands was made by the representatives of the occupation in the pilot group or selected specialists outside the group.

Thirteen out of 20 respondents indicated they had made the theoretical specification for the modularization independently and the tutoring courses had helped them a great deal in the work. Only three of the groups regarded the extent of the tutoring courses sufficient. Many groups would have welcomed models or examples for their work.

Three groups had derived the modules directly from the prevailing curriculums. Two groups had developed their modules according to the demands of the society or clients. In comparing the questionnaire results and final reports, the technical occupation groups had their work ready, and the

others were still working. In the final reports, the way how the modules were developed is quite conventional, i.e. the technical modules can be described with simple work analysis patterns. However, I want to emphasize that the final reports represent the more technical occupations, and the questionnaire answers represent the service vocations.

The groups described the experiences they had or their intentions for modularization in educational terms. Very few indicated that their intentions were to take the view of production unit, to serve supposed clients or to begin from the idea of the developing qualifications of future manpower. The technical and service vocations did not differ from each other. The nursing and social occupations' findings were different from the others.

Organizing the examination

The modules were arranged so that the whole exam took from one to six days. Completing more than one module a day was common, but in some exams the modules were built within one each other. In many of those cases, the concepts of module, test period, and assessed object were confused and mixed in naming. Most had arranged the testing in the colleges, and only 7 responded that a production unit was also a possibility for administering the exam. The different occupations includ-

ed a variety of theoretical pen and paper work, planning, calculating, and project work like computing or solving working life simulations very freely. Some required these activities in advance, some between the modules, and some inside them.

A section of written theoretical items of vocation was a part of most exams. In technical vocations that was in-built in working modules, in five other tests it was included between the modules or before taking part in them. Self evaluation was included in three exams, and reflection as a form of vocational reasoning in only one.

What are the alternatives in the exams? Only nine groups responded that variations were a possibility. It was possible to choose the place for test (4), choose the order of the modules (3) and the time (2). The scope of the exam could be chosen in two cases, and in one the candidate could choose the co-worker. Only in very few tests did the candidate take part in the assessment.

The duration of the test varied from four to 60 hours! Only 9 groups had decided the length of the test, and amount of those exams are listed:

4-5	h	3 exams	
5-15	"	4	"
20	"	1	"
50-60	"	1	" (the rest had not decided the length)

As a whole, the plans of different experimental groups gave an impression of different amounts of work or a

variety of activities involved in the exam. They also structured the test situations differently. No logical grounds were presented nor found for the differences.

The strategies of modularization

To test the theoretical model of exam the grounds of modularization were analyzed. The groups were formed on the bases of whether the modules were named according to (1.) the object of work (2.) the tools or working machines, (3.) working methods or producing process, (4.) products or (5.) something else. (The list of the occupations of the reports, Appendix 1. The frequencies of cases in Appendix 2.)

To summarize the results: the builders classify the modules by products (i.e. what they are doing), and sawmill workers and car-mechanics through materials and objects they are handling. The general mechanics list the modules by the tool or working machine, and the joiners after the working method.

Three out of the waiter's modules could not be classified to any of the above categories 1 - 4. These were named 'client-based service', 'acting in working team' and 'economical producing and profit making (in different type restaurants)'.

Only the bricklayer modules consisted of purely one type naming (product of work). The others were combi-

nations of two or three different types. The exams dealt with all the aspects named, but the main base for the modularization of a vocation is supposed to reflect the thinking which is typical to that vocation.

The depth and breadth of occupational skill

The final pilot reports give very little possibilities to test the hypothesis about the deepening competence. Only few vocations had two or more exams the level of one more demanding than of the other. Bricklayer exams were one example, and the modules in the specializing exam were named the same as in the lower, basic one, but were mentioned to be 'more demanding'. The advanced carpenter's exam differed more from the basic carpenter. Both of the carpenter exams had three 'product' modules, and the advanced exam had one 'method' and one 'leadership' module instead of the two 'materials' of the basic examination.

CONCLUSIONS

Two goals were included for the exams of different occupations. They must consist of the typical structure of the vocation and express it with working tasks and modularization of the exam. The variety of the occupations have to be seen and reflected in them. The

other goal is that the exam must be about the same standard level with other exams concerning the requirements and amount of work and effort to reach and perform. The answer may be that the vocations are not alike and neither are the salaries, nor working conditions, or qualifications in different occupations. To standardize the exams too far is to violate the 'natural' regulation of entry to occupations. In that regard, the form and structure of exams will be a question of importance as soon as the structure of examination system is ready.

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APPENDIX 1

THE OCCUPATIONS REPRESENTED IN THE REPORTS OF THE PILOT GROUPS

Metalliala (metalwork)

KONEISTAJA
KONEENASENTAJA
LEVYSEPPÄ-HITSAAJA (amm.t.)
TYÖKALUVALMISTAJA (erik.amm.t.)
CAD/CAM-OHJELMOIJA (erik.amm.t.)
LEVYTYÖKESKUS- JA LASERKÄYTTÄJÄ (erik.amm.t.)
LEVYALAN CAD/CAM-KÄYTTÄJÄ

Sähköala (electronics)

AUTOMAATIONTEKNIikka
TIETOTEKNIikka
SÄHKÖVOIMATEKNIikka

Rakennusala (building construction)

KIRVESMIES (perust.)
KIRVESMIES (amm.t.)
MUURARI (perust.)
MUURARI (amm.t.)
RAKENNUSMIES

Puuteollisuusala (wood industry)

PUUSEPPÄ
LEVYPROSESSINHOITAJA
SAHAUSPROSESSINHOITAJA

Autoala (car repairing)

MEKAANIKKO
HYÖTYAJONEUVONKULJETTAJA

Maatalous (farming)

MAATALOUSLOMITTAJA

Metsätalous (forestry)

METSÄMEKAANIKKO

Hotelli- ja ravintola-ala (hotel & restaurant services)

RESTOSAANI

YHT. 23

APPENDIX 2

THE PRINCIPLES OF MODULARIZATION IN EXAMINATIONS OF THE PILOT GROUPS, the amount of modules/exam.

(Variation of the amount of modules in exams is from four to six)

1. Materials or working objects

- 4 sahateoll.t./ automekaanikko (sawmill exam/car mechanist)
- 3 rakennusmies
- 2 työkaluvalm./kirvesmies/levyteoll.h./metsämeekaanikko/maatal.lom.
- 1 levyseppä-hitsaaja

2. Working tools and machines

- 4 koneistaja/cad-cam asentaja/levyalan cad-cam (machinist/cad-cam exams)
- 3 levytyökeskus-laserkäyttäjä
- 2
- 1 hyötyajon.k./maatal.l./sahatel/levyseppä-hits./työkaluvalm./levytyök.-laserh.

3. Working methods

- 4 puuseppä (joiner)
- 3
- 2 hyötyajon.k./maatal.l./koneenasentaja/tietotekn.as
- 1 automekaanikko/restosaani/kirvesmies amm.t./levyseppä-hitsaaja/työkaluvalm./automaatiot.

4. Product or goal of work

- 5 muurari (bricklayer)
- 4 muurari (amm.t) (bricklayer, advanced)
- 3 kirvesmies/kirvesmies amm.t. (carpenters)
- 2 puuseppä/levyteoll.h
- 1 rak.mies/

5. Something else

- 3 restosaani (waiter)
- 2
- 1 hyötyaj.kulj./metsämek./rakennusmies/kirvesmies/levytyök.-laser/cad-cam ohj.

Modules named:

Restosaani: 'client based service', 'acting in working team', 'economic functions and profit making (in different restaurants)'

Hyötyaj.kulj.: 'safety and communication'

Metsämeekaanikko: 'entrepreneurship'

Rakennusmies: 'assisting other occupational workers'

Cad/cam occupations: 'quality control'

PROBLEMS OF CERTIFICATION IN SOME "SOFT" VOCATIONS

Anneli Niikko

Some problems of training /qualifying programs and certificates for social and health care occupations are discussed. The importance of student-teacher interaction is emphasized as a part of the training process, and competence examinations are criticized as a basis for certification for these occupations. Descriptors: vocational education, caring service occupations.

THE FEMALE DOMINATED VOCATIONS AND EXAMINATIONS IN TRANSITION

In the 1960's the vocations and the respective education formed a somewhat linear and straightforward system in the society. This system was very much compatible with the working life and the community as a whole.

In the 1970's the relationship between the vocations, examinations and certificates started to change due to the new demands from the working life. The requirements for the nursing and care vocations became officially stated and institutionalized. In addition to this the vocations were restrictively defined to specific tasks which in turn demanded specific schooling.

This led to a hierarchy of vocations and degrees in the working life and also

to the definition of the client's needs and skills of the worker from the side of the vocation and not the other way around. In many educational areas the courses were based on the practices of the vocation and on the concrete know-how.

The situation is different now and the Finnish society is going through a change. Some old occupation are disappearing, some occupation are continued and new ones are created. The female dominated vocations strive at getting rid of some of the older vocational examinations and at shortening the duration of schooling. By legislation the old examination and qualification requirements in the social health and nursing vocations are not valid any more. Just anybody can start up a nursing home, for instance, without having a corresponding

examination or degree. The argument behind this is the idea of free enterprise.

This new legislation has it good and bad sides. One positive thing is that the vocations and the tasks attached to them can be looked at from a wider perspective. Also the "commuting" between different vocations becomes a lot more flexible.

A negative thing is that even though the examinations did not guarantee quality they could be seen as some kind of an insurance for those (children, the elderly, the disabled) who can not stand up for themselves. The examinations have always included some kind of a societal control of interest. The institutions and their teachers have functioned as the "first gatekeepers". Now the society's control turns more and more into quality control between the private client and the worker.

In social and health care, however, not all the clients are able to demand quality. The truth of the matter is that the children, the elderly and the disabled cannot assess the competence and the work quality of the worker. One of the main concerns now is that the branch attracts people with poor qualifications and entrepreneurs with very little sense of responsibility.

It is alarming that the results of this doubtful development pile up on those in need and very much in the life of women.

CHANGE IN VOCATIONAL EDUCATION

When the issues are looked at broadly it can be said that we are living in an era of rapid changes where the effects of the global integration of the economies and of the technical development on the societal structures can clearly be seen.

The examinations and degrees cannot remain untouched as the vocations and their substances and all that is considered essential for the educational structure suddenly vanish and is gone. The deep-going change shakes the bases of the old competence criteria.

For instance, a course initiated for three years ago and the certificate from it does not necessarily have any weight or value any more. The examination has simply become outdated and time has passed by it.

Vocational education is faced with immense challenges and questions. Some students have indeed become accepted into social and health care education without being able to tell them what the education, their future work, or even the certificate will be like.

All the things that so far have been regarded as vocational qualifications will have to be re-evaluated and changed. Skills concerning the ability to be in charge of one's own life, survival strategies (interaction skills, knowledge of languages, organizing ability, decision making skills etc.) will be

central and essential areas of professional competence. Special proficiencies are the core of the specific vocations and they quickly become outdated.

DEVELOPMENT PURSUITS IN VOCATIONAL EDUCATION

The examinations and degrees are always defined by a specific educational institution. An individual attending the education is mostly concerned with learning the ropes and becoming good at what he is doing. The learning of the ropes and the institutionally defined examination are joined together in such educational and examination models as the apprenticeship and the competence based examination. These both are alternatives to the traditional in-service vocational training, the first when it comes to the actual education and the latter when it comes to the evaluation/examination.

Apprenticeship

This work-based form of education is in a way simplified vocational education taking place partly at work and partly in school or only at work. Apprenticeship has been used in some areas in the social and health care education. Mostly the adult education institutes have had this kind of educational responsibility and a right to award certi-

ficates. The certificates have been completely comparable with the traditional ones.

This model has the advantage of the fact that it is up-to-date with the working life. The intention is that the practice and theory complete one another. The needs of the employer have also been taken into consideration as well as the time frame.

There are underlying dangers as well. It can be suspected that this way the vocational training is guided to suit the industrial needs. It can mean narrowing down of the education. The apprenticeship does not include language teaching or any other all-round education. It can also be suspected that in these times of economic recession the education becomes more and more practice-centred since it is more cost-effective than the theory-oriented schooling.

Competence-based examination

Competence-based examination is a rather new way of assessing the professional competence and becoming qualified in a profession without going through the training. It can mean a huge leap ahead if its realization is understood from the pedagogical point of view.

At this moment the ideas contradict each other. Those who are for the examination see it as an effective way to benefit from the

previous experiences and as a way to save time and money. Many pedagogues, and vocational teachers are suspicious though. They see the examination as an administrative way to cut expenses and to weaken the vocational qualifications. As its worst, the examination is seen as a mechanical and behavioristic means of measurement.

It is also doubted if the examination can reveal the deeper processes of learning and whether it can give enough information about the individual's development and the personal working habits and ideas. Furthermore, it is not possible during an examination in the social and health care branch to find out how the person is able to cope with difficult situations, changes in the work conditions and so forth. How can the examination estimate the learning and growing processes before and after the testing situation which takes place only once and under unreal circumstances?

EXAMINATIONS AND CERTIFICATES CALLED IN QUESTION

The value and usefulness of the certificates and examinations in different educational systems is problematic because the examinations are often based on study weeks or credits which then are measured.

When we compare different certifi-

cates (e.g. in the years of 1980 and 1990) they seem to be very similar in their contents. They are poor descriptions of the given education. The certificates should have such form that they are up-to-date and describe the demands and requirements of the education in question. The certificate from a study program along with the reports and certificates are in a way proofs of competence and qualification. When the person enters the working life it is the employer's task to form an opinion which then completes the one on the certificate.

From the pedagogical point of view the paradigms of the trainer, the trainee and the employer influence things that these people emphasize when assessing competence and qualification. A general agreement requires such an atmosphere that a colleague or a student has a right to a dissenting opinion on how these things are prioritized. How can all these different sides and opinions be merged in these various ways of examinations and certificates?

The examinations and certificates very seldom give an idea of how competent the person is. In the social branches, for example, there are many competence areas which cannot be made concrete (communicative skills, interaction etc.). How can these be assessed and credited for in these examinations?

The question is whether the examinations and certificates count in the

future, or are some other factors more significant, like what the person is and what he/she can; what kind of things he/she emphasizes and what are his/her special talents? How are we able to measure these qualifications that get more and more importance in the future? At present, the things that are being measured are from the past and hardly at all from the future.

CONCLUSION

In Finland as well as in other parts of the world the educational (especially vocational education) systems are going through reforms and renovation.

When the old structures are being torn down and the basic vocational skills can be attained through e.g. apprenticeship and competence-based examinations the employer will not be getting a "ready and complete" worker. Is he/she then prepared to continue the worker's education so that the worker will be qualified in the work he/she has been hired for? It seems that the vocational education is more and more about upgrading of the competence, supporting already acquired special skills and know-how.

But who is in charge of providing the professional-to-be with a broad education base? The special skills and knowledge will not be enough, the ability to control one's life is also essential. It is a question of creating an integrated whole.

From the point of view of the trainee it is a question of acquiring the basic vocational skills, basic expertise. The courses should include a development and educative component.

It is very important that the education has a solid substance on which the thinking abilities, interaction and the survival skills can be built through reflection upon. Even though the acquired facilities become old-fashioned it is possible to attain very valuable capital with them: a base for survival, for tolerance of insecurity, for new learning experiences, for strength to create and produce something new.

Learning different skills is a sustained process which changes through times and which cannot take place without a profound relationship to another person. There are always students attending a course who need a firm relationship with the trainer, where the trainer can function as a mirror to the student.

Educational and learning processes cannot completely be moved over to the working places or to be replaced by books and television, because their function is different.

At its best, the relationship between the trainer and the trainee is of lasting nature and serves the purpose of the development and lifelong learning of the trainee.

The examinations and the certificates cannot and may not be isolated things which are handed to the students from somewhere above but

must be a part of the surrounding reality. The examinations and certificates are markings of an ending of a phase in the education, like blowing the whistle in a game. The learning process should continue.

We are faced with serious questions at the moment. We have to ask ourselves if it is a mechanical society or

a humane society that we want to promote. We also need to take a stand on the question of what kind of learning and development we favour, what kind of professionals, experts and future youths and adults we want to support with education and how we want the examinations and their grading to be. What we need now is very wise thoughts and even wiser decisions.

The Corporate classroom: is there a possibility of increasing in-service education in the sectors of retail industry, the hotel business and catering?

Arja Puurula

As a comment to the presentations of Matti Taalas and Anneli Niikko, I would like to conclude that among the most difficult problems when developing competence based vocational examinations in Finland are 1) the status of so called "core skills" (meaning communication, maths, information technology and personal and social skills), 2) links to life-long education and the education of adults still in the work-force, 3) female-dominated careers and vocations, 4) co-operation between employers and vocational schools, 5) individual's own idea of what's best for him/her, 6) future perspectives and changes in vocational skills.

In Finland we have the serious problem of a middle-aged, poorly educated female work-force. For instance, more than 43% of those working in trade, catering and the hotel business are without formal vocational education (Koulutus 1991). To quote Asplund (1991): "There will be a growing need for

education and training that provide working adults with better basic education and new occupational knowledge and skills in order to increase their occupational mobility, and/or help them to maintain or develop their skills in their present jobs. Possibly improved opportunities to stay abreast with the rapid flow in today's working life would at the same time reduce growing outflow from the economically active population, especially among older-aged employees. Stopping or at least slowing down this outflow is, in effect, the only significant labour reserve left in Finland." (Asplund 1991).

BACKGROUND: THE SCOPE OF PERSONNEL TRAINING IN FINLAND

Participation in all forms of adult education in Finland has increased rapidly since 1980, from 30% of the population aged 18-73 years to 44% in 1990, according to the latest Adult Education Survey. One third of the

adult participants were educated in formal education systems and two thirds in informal ones. 36% of all adult students were trained on in-service courses. The costs of in-service training are covered for the most part by the employers. (Education in Finland 1991.)

The increase in numbers in training does not, however, reveal the true nature of attendance. Selection for training is severely unbalanced: the most highly educated persons receive the greatest amount of in-service training (30% with a primary or secondary education attended personnel training courses in 1989, while 75% with a tertiary-level education did so). Secondly, although the majority of in-service students are female, they received 2.1 fewer training days than males in 1989 (*ibid.* 244). Thirdly, older persons receive markedly less training than other employees. Fourthly, the steady growth in the numbers of employees trained has happened at the expense of the length of the training period, which in 1989 was six days on average (*ibid.*). And finally, the amount of training varies according to industrial sector: transport 8.2 days on average per year, industry and financial institutes and insurance more than six days as compared to construction 4.5 days and trade 5.7 days in 1987 (Asplund 1991). In sum, the statistics show that in-service training is highly cumulative and selective.

The number of participants in in-service education can be estimated to

have collapsed dramatically during the past three years because of the period of business depression. A public opinion survey in 1991 revealed that 58% of Finnish employees consider the amount of in-service training to be insufficient. Opinions differ clearly according to professional status: 39% of upper-level managers, but 66% of workers express the same view. The quality of training courses was evaluated as high by 17% of respondents and as low by 15%. The less educated workers and lower-level white-collar workers rated the quality of training lower than others (Tutkimus..1991).

THE NEW ROLE OF APPRENTICESHIP EDUCATION IN STAFF DEVELOPMENT

Almost every second local authority in Finland has a vocational education institution, and it is estimated that in these we have 1.5 starting places for each 16 year old. More than 80% of the age group 16-19 years are studying in either senior high schools or vocational schools. This explains why the apprenticeship scheme is of minor interest among youngsters. (Education in Finland 1991).

The apprenticeship scheme is becoming more and more popular in adult education. The relative share of apprenticeship programmes in all forms of adult vocational education was 10% in 1990 and was expected to increase to

16% of all basic education and re-education by the year 2000 (Kehittyvä koulutus 1990). Because the system is fully tied to the financial possibilities of a company to recruit new personnel, the past years of recession have produced a severe decrease in the numbers of students. Trade unions have also been traditionally opposed to this system.

A new law regulating apprenticeship education in Finland came into force at the end of last year. The law presented major benefits to both employers and employees. First of all, the system allows *the vocational further education of employees* with financial support from the local authorities. The support is not very high: it is about one tenth of the average salary of a worker per month. This type of adult education is completely free to employees and can be arranged during regular working schedules.

According to the new law, companies can make staff development programmes from 4 to 12 months. They may use supervisors of their own or consultants from specialized training companies to back up the attainment of instructional aims. About ten per cent of the training period is spent in classrooms, either in vocational institutes or in company-owned schools. Great emphasis is placed on the integration of work and theoretical studies. Open, distance and other forms of education can be applied.

Employers have an obligation to

evaluate the students in periods of work. Employees receive a certificate with grades. The system of evaluation is stated to be a numerical one, but the criteria for evaluation have been left open. Several systems of evaluation are now under scrutiny. Formal final examinations or tests are not given.

This raises the problem of the differences between traditional staff development programmes and the new forms of vocational further education programmes. The main distinctive features, as I see them, have been gathered in table 1.

THE CASE OF A RETAIL BUSINESS COMPANY, ELANTO

With over 4000 employees, "Elanto" ranks 54th among Finland's largest companies. It deals mainly in retail trade, having five hypermarkets, two traditional department stores, 83 supermarkets, and about 50 grocery stores and baker's shops. In addition to this, Elanto owns a hotel chain, several cafés and restaurants, which are backed by a bakery, a laundry and four farms. The history of the company dates back to 1905.

The average age of the employees is as high as 40. More than 42% are over 45. The level of basic education is rather low, for example 55% of salespeople have a primary level of basic education. Needless to say, the great majority of the staff is female.

Table 1. *The distinctive features of traditional in-service training and the new system of vocational further education in companies*

	traditional in-service training	vocational further education on-the-job
duration	a few days; a seminar or a short course	4-12 months
aims	giving current information; updating knowledge and skills in narrow terms	to provide the employee with the general knowledge and vocational skills that are needed in changed working situations
goals	to increase productivity and/or profit by rewarding certain persons with educational courses: <i>mainly company-related goals</i>	to increase productivity and/or profit and to further a person's vocational competence: <i>both company- and employee-related goals</i>
pedagogy	seminars usually held in educational centres; lectures, small-group work	the natural integration of work and theoretical studies on-the-job: distance-education applied
evaluation	informal certificate	official certificate including grades
selection for training	biased by sex, age, prior education and professional status	whole staff or selection on individual basis
position in the formal education system	no links	includes modules that can be made parts of the secondary or tertiary level qualifications

Mobility is low. For this staff we have started 16 training courses during the spring on the basis of the new apprenticeship law. By now, we have made about 700 individual agreements for training.

The first principle in the planning of our new training programmes has been flexibility. Theoretical studies and work are integrated with daily business: in seasons of low sell we give theoretical courses in classrooms that are near the shop-level and in seasons of high sell people do their normal jobs.

The second principle is the use of common themes (quality in service, basics in business economy and human resources), which are then put into practice by the leaders of the programs. The third principle is the use of the competence of our own staff as educators and course leaders. The fourth principle is the use of distance-education, e.g. bulletins, letters, and short essays. And finally, the programmes are open to all.

The three themes we use, quality in service, business economy and

human resources, can be considered as modules of the examination of a skilled worker in retail industry. All of these are also to be found in the analysis by (Matti Taalas 1993) in the occupations of the hotel and restaurant business. In addition to these modules I consider two modules important: knowledge of articles and materials of goods, and basics in marketing and selling. As a matter of fact, these themes match quite well with the official certificates now in use and stated by the National Board of Education. Within these five modules it is, in future, quite possible to arrange exams, where a candidate in spite of his/her age or formal vocational education, can demonstrate his/her skills and knowledge. As the following figures highlight, in spite of the fact that the staff of the case company has less formal vocational education (only 30.7% has a vocational certificate), it is well trained through short term courses. The employees have also been

rather active in studying in their free-time the skills they need at work. All this should be taken into consideration in order to form their new vocational basic-level certificates.

With regard to these trades, I would prefer an exam which contains both theoretical pen and paper work, simulated situations and video-taped problem-solving tests. The exact descriptions of the details of each theme would help employees and employers to decide the level and pace of the studies. The higher level exams of the vocations should also contain modules of leadership, communication and foreign languages (English, German or French). The issue of basic/general education is a difficult one to solve: it should not be overlooked.

In summary: The new law guarantees a flexible way to arrange staff development programs both at basic and advanced levels in retail industry.

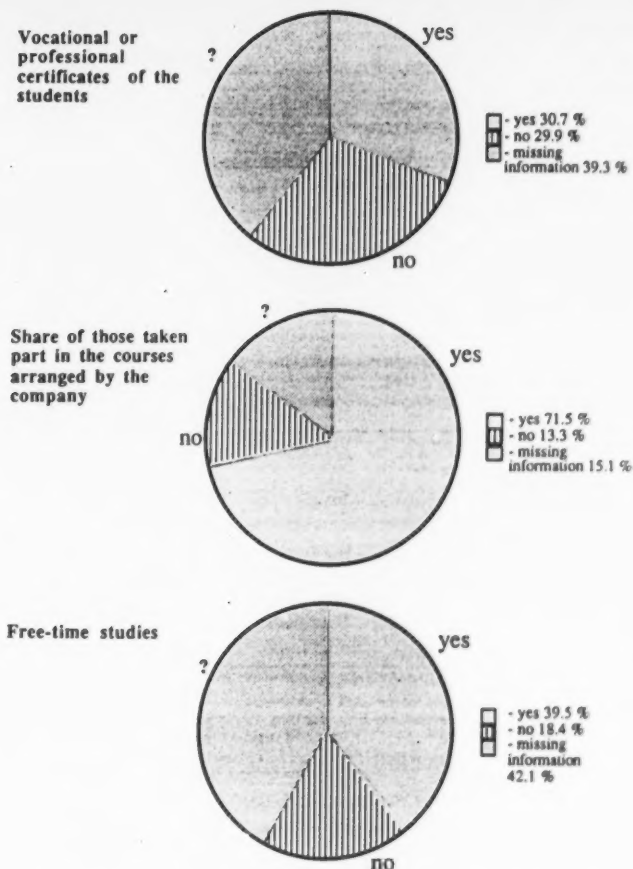


Figure 1. *The standard of vocational education of the students of the apprenticeship programs in the case company (N=615)*

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PART IV:
YHTEENVETO
CONCLUDING REMARKS FOR
THE FINNISH READERS

AMMATTITAIIDON JA SEN ARVIOINNIN TARKASTELU- NÄKÖKULMIA

Concluding remarks about the workshop 'Producing and Certifying Vocational Qualifications' for Finnish readers

Matti Taalas

Artikkelissa esitetään yhtenäinen tarkastelukehikko workshopissa esille tulleille näkökulmille ammattitaidosta ja sitä mittaavasta tutkinnosta sekä vertaillaan eri maiden järjestelmiä suomalaisten näyttötutkintojen kehittämisen kannalta. Tarkastellut maat ovat Englanti (UK), Skotlanti, Saksa, Hollanti ja USA (Virginia). Hakusanat: Näyttötutkinnot, ammatillisen tutkinnot, ammattitaidon arviointi, ammatillinen aikuiskoulutus.

AMMATTITAIIDON TARKASTELUSUUNNAT

Ammattitaidon tuottaminen (producing) ja toisaalta ammattitaidon tunnustaminen (certification) eli ammatin kouluttaminen ja ammatillisten taitojen oppiminen toisaalta ja ammattitaidon arviointi, ammatilliset tutkinnot, pätevyystodistukset ja suoritusten rekisteröinti toisaalta on nähty työseminaarin esityksissä toisistaan erillään pidettävänä asioina. Tämän eron tekeminen tekee mahdolliseksi pohtia ammattitaidon tutkinnolla tunnustamiseen liittyviä ongelmia riippumatta taidon hankkimiseen liittyvistä ongel-

mista.

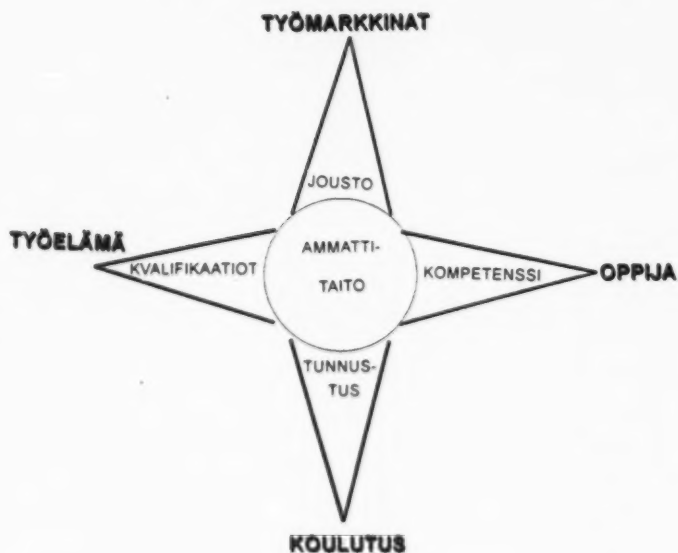
Ammattitaidon tarkasteleminen saman suuntaisesti työelämässä, koulutuksessa ja työmarkkinoilla mahdollistaa yhteistyön ammattitaidon tuottamisessa. Tämä on edellytys myös ammatillisten taitojen tehokkaalle ja tarkoituksenmukaiselle oppimiselle oppijan kannalta koulutuksen tai koko elämän kestävässä työuran eri vaiheissa.

Toinen puheenvuorojen yhteinen ajatus on, että käsitykset ammattitaidosta ja sen merkityksestä konkretisoituvat ammatillisissa kokeissa ja tutkimuksissa (examinations), joihin perustuvat ammattitaidon tunnusteet - todistukset (certificates). Ammattitaitokä-

sitykset heijastuvat tutkintojen sisälöissä, suoritusehdoissa ja tutkinnoista vastuussa olevien toimikuntien ja arvosteluryhmien kokoonpanoissa. Tutkintojen sisällöistä ja suorittamista kootulla tiedolla on suuri käyttöarvo koulutusta suunniteltaessa, edelleen kehitettäessä ja tuloksellisuutta arvioitaessa. Sillä on myös merkitystä työmarkkinatietona työvoiman käytön suunnittelulle ja ohjaukselle.

Keskeiset ammattitaito-käsitteen

määrittäjät ovat työelämä työ- ja tuotantoyksiköineen, työmarkkinat edunvalvonta-, neuvottelu- ja ohjantajajärjestelyineen, ammatillinen koulutushallinto ja oppilaitokset sekä ammatin opiskelija itse käsityksineen ja valintoineen. Näillä eri tahoilla on myös erilaiset intressit valvottavinaan, jotka eivät välttämättä ole yhtenevät. Ammattitaidon ja -tutkintojen tarkastelunäkökulmat voidaan yksinkertaistaa kuvion 1. 'kompassi-ruusun' tapaan.



Kuvio 1. Ammattitaidon tarkastelusuunnat

Työelämän näkökulma

Työelämän organisaatiot tarkastelevat ammattitaitoa tuotannon tekijänä, työntekijään kohdistuvina ammattitaidollisina suoriutumisvaatimuksina -

kvalifikaatioina - jotka työntekijäin määrän ja taitotason on täytettävä. Kvalifikaatioita ei tule tarkastella työstä johdettuina ja tekijälle asetettuina suorittamisen ehtoina, vaan nimienomaan työntekijän ja työ suhteen

kannalta. Kysymys on miten noita ehtoja voidaan kehittää ja muuttaa, rikastaa työtä ja lisätä vuorovaikutusmahdollisuuksia ja -valmiutta.

Tuotannon muutokset, joita aiheuttavat teknologinen kehitys, uudet tuotantotavat, muutokset työnjaossa, kansainvälinen kauppa ja yritysmuodot sekä yhteiskunnan muuttuminen, heijastuvat kvalifikaatiovaatimuksiin yhä nopeammin. Seurauksena on aikaisempien kvalifikaatioiden vanheneminen ja uusien syntyminen työn ja tuotantolosuhteiden muuttuessa.

Keskeisiä muutoksia ovat työntekijöiden määrällisen tarpeen väheneminen sekä taito- ja vastuuvaatimusten kohoaminen. Työntekijältä edellytetään entistä enemmän joustavuutta uudelleen sijoittelussa ja osallistumisvalmiutta työssä tapahtuvaan koulutukseen.

Koulutuksen näkökulma

Suomessa koulutus kirjaa vaaditun ammattitaidon koulutustutkintoina - päättötutkintoina. Tutkinnot on määriteltä osana koulutusta opetussuunnitelmissa päättötutkintoina tai erillisinä ammatillisina tutkintoperusteina kuten esim. näyttökokeeseen perustuvat tutkinnot. Koulutuksen ohella eri maissa tutkintoja voivat järjestää ja todistuksia myöntää myös työelämän piiriin kuuluvat tahot, ja joiden tunnustaminen tapahtuu sopimusperusteisesti (esim. Englanti), tai ammattitaidon

tunnustaminen voi vaatia muidenkin kuin koulutusauktoriteettien osallistumista (esim. Saksan dual-system).

Suomessa ammatillinen koulutus ja tutkinnot painottuvat nuorisoasteelle ja vaativat keskeisesti kokopäiväistä koulunkäyntiä. Koulutus tuottaa ja antaa tunnusteen ammatillisista taidoista ja valmiuksista. Sana 'tutkinto' kuvastaa tällöin koulutusohjelmaa pikemminkin kuin koeteltua valmiutta toimia työelämässä.

Vanhemmilla ikäluokilla ammatillinen peruskoulutus on vähäistä, eikä työskentely verkkaan muuttuneessa työelämässä ole pitänyt yllä valmiutta uusien ammatillisten taitojen oppimiseen siinä määrin kuin nykyhetki edellyttäisi. Paluu kouluun tutkintoja suorittamaan on hyvin vaikeaa. Ammatillinen koulutus pyrkii tuottamaan ammattien oppimisvalmiuksia, taitoa jatkuvaan oppimiseen ja omaksutun taidon tiedostamiseen. Tällä valmiudella on enenevässä määrin kysyntää työelämässä osana ammatillisia kvalifikaatioita.

Vastuu työntekijöiden ammattitaidon uudentamisesta vaihtelee eri maissa. Se voi kuulua joko työorganisaatiolle (työpaikkakoulutus ja työelämän tutkintojen tunnustaminen työpaikoissa tai laajemminkin), työntekijälle itselleen (omaehtoinen koulutautuminen), koulutusjärjestelmälle (aikuiskoulutus) tai työvoimaorganisaatioille (työllisyyskoulutus) tai näiden erilaisille yhdistelmille. Eri maissa on havaittavissa pyrkimys nuoriso- ja

aikuiskoulutuksen joustavaan yhteen nivomiseen sekä poistamaan koulutukseen palaamisen esteitä. Kouluttamisvastuuta - niin aloite-, osallistumiskuinkin talousvastuutakin - pyritään jakamaan tasaisemmin opiskelijan, työelämän ja yhteiskunnan kesken.

Työntekijän/oppijan näkökulma

Ammattitaidon hankkijan tarkoitus on saada ammatillinen pätevyys - kompetenssi, jolla hän voi vastata työn asettamiin kvalifikaatiovaatimuksiin. Hän pyrkii myös rakentamaan itselleen ammatillista identiteettiä. Työn muuttuminen edellyttää ammatillisen pätevyyden lisäämistä tai uudelleen suunntaamista, jopa ammatti-identiteettiä koskevaa muutosta. Yksilön omat kehitymistavoitteet, eteneminen uralla tai motivoituminen työhön saavat hänet laajentamaan kompetenssiaan läpi elämän. Nuoruudessa hankittu ammatillinen valmius ei enää riitä, vaan vanhennee ja ammatillisen pätevyyden uudeksi ytimeksi muodostuu valmius jatkuvaan ammatilliseen kasvuun ja kehittymiseen, johon useita vuosia sitten saatu ammatillinen koulutus ei ehkä ole antanut riittävästi keinoja ja asenteita.

Eri pituisten koulutusvaiheiden tarve jatkuu koko aktiivisen työssäoloajan, jolloin opiskelijan ja työntekijän roolit lomittuvat. Aikuisten määrä ammatillisessa koulutuksessa kasvaa ja muuttaa ammatillisen koulutuksen

luonnetta, rakennetta ja painopisteitä. Koulutuksen asema yksilön elämänuralla saa aikaisempaa suuremman merkityksen. Opiskelija on koulutuksessa lyhytkestoisesti useasti elämänsä eri vaiheissa, koulutus muodostaa sisältötekijää työlle, lähenee työntekoa ja nivoo omaehtoisuuden, työpaikan ja koulutusinstituutiot toisiinsa. Opiskelijan kannalta kouluttautuminen työssä asettaa tutkintojärjestelmälle uudet, korostuneet vaatimukset kannustaa, helpottaa ja yksinkertaistaa ammattitaidon ajantasalla pitämistä.

Eteneminen ammatissa suorittamalla yhä korkeampia tutkintoja muodostaa opiskelevalle keskeisen kysymyksen. Työperustaisia tutkintoja on kritikoitu siitä, että ne korostaessaan työn suorittamisvalmiuksia sivuuttavat laajojen oppimis- ja opiskeluvalmiuksien kehittämisen. Teoreettisen ja ammatillisen yleissivistyksen kapeus salpaa etenemisen korkeampiin jatkotutkintoihin. Skotlannin ja UK:n tutkintojärjestelmät ovat kenittäneet ammatillisten tutkintojen rinnalle vastaavalla tavalla organisoidut yleisten kouluttautumisvalmiuksien porrastetut tutkintorakennelmat (General SVQ ja General NVQ). Ne koostuvat moduuleista, jotka arvioivat jatko-opintojen kannalta tarpeellisia ja oleellisia valmiuksia, kuten kommunikointitaito, numeraaliset taidot, ongelmanratkaisutaidot ja informaatioteknologia. Näiden tutkintojen suorittaminen on hyväksytty sisäänpääsyn ehdoksi myös korkea-asteen jatkokoulutukseen, eli ne luovat mahdollisuu-

den horisontaaliseen ja vertikaaliseen siirtymiseen koulutusjärjestelmässä.

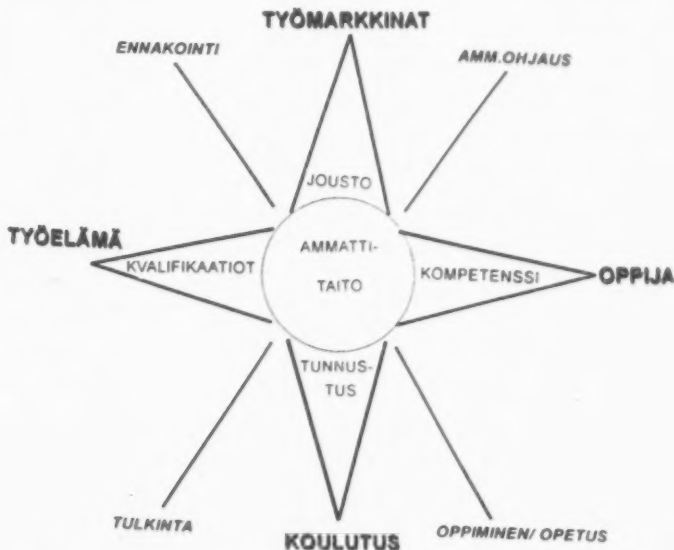
Työmarkkinoiden näkökulma

Työmarkkinoiden organisaatiot pyrkivät ratkaisemaan työn ja tekijän kohtaamisen ongelman: löytää tekijälle työ ja työlle tekijä. Tarkoituksenmukaisesti asetetut työvoiman määrää ja ammattitaitoa koskevat kvalifikaatiovaatimukset ja niihin vastaava ammatillisten tutkintojen tarjonta sekä suoritusten määrällinen seuranta ovat joustavan työhönsijoittumisen kannalta tärkeitä. Työmarkkinoiden muutokset, kansalliset ja kansainväliset suhdannevaihtelut, sopimukset ja yhteiskunnan rak-

kennemuutokset heijastuvat työhön sijoittumisessa. Näitä vaikutuksia työmarkkinapoliittiset toimenpiteet pyrkivät lievittämään sijoittamalla työvoimaa koulutukseen sekä toisaalta suuntaamalla ammatillista koulutusta tuotannon muutoksiin. Joustava ammatillisten tutkintojen rakenne lisää joustoa työhön sijoittumisessa.

NÄKÖKULMIEN VÄLINEN 'KESKUSTELU' JA AMMATILLINEN TUTKINTO

Kuviossa 2. on edellisen kuvion 1. 'ruusun lehtien' esittämien tarkastelutahojen välinen yhteys pyritty kuvaamaan ikään kuin 'keskustelupintoina'.



Kuvio 2. Ammattitaidon tarkastelusuunnat ja näkökulmien välinen 'keskustelu'

Pinnoilla käytävää keskustelua pyritään kuvaamaan yhdellä sanalla. Eri tahoja edustavien organisaatioiden välinen yhteistyö on toki moninaisempaa kuin väliviivan kuvaama keskustelu. Tarkoituksena on korostaa sitä vaihtoa, joka tuossa pinnassa tapahtuu nimenomaan ammattitaidon käsitysten yhdentymisen tai eroamisen näkökulmasta. Pyrkimyksenä on myös sijoittaa erityyppiset keskustelut kuvion nimeämille 'keskustelupinnoille'.

Kvalifikaatio-odotusten ennakointi

Työmarkkinoiden organisaatiot pyrkivät tulkitsemaan ja ennakoimaan työelämän muutosta sekä tulevaisuudessa tarvittavan ammattitaidon määrää ja laatua. Työelämän organisaatiot pyrkivät myös viestittämään markkinoille kehityksensä ja odotuksensa. Kansainvälisiin vaikutuksiin pyritään varautumaan, kuten tuotannon muutospaineisiin, siirtymiseen ja työvoiman liikkuvuuteen.

Englannissa ja Skotlannissa työvoiman ammatillisen tason nostaminen, ammatillisten taitojen rekisteröintitarve ja työvoiman liikkuvuuden edistäminen Yhdistyneen Kuningaskunnan sisällä olivat keskeisiä syitä uuteen näyttötutkintojärjestelmään siirtymiselle. Valmistautuminen Euroopan maiden yhteistyöhön, vapautuviin työmarkkinoihin ja vieraan työvoiman osuus heijastuvat myös tuon tutkintojärjestelmän (NVQ ja GNVQ) kehittämisessä. Suomessa työssä syrjäytymiseen pyritään vaikuttamaan elinikäistä koulutusta ja työssä oppimista tukemalla. Tähän pyrkii myös parasta aikaa kehitteillä oleva am-

matillinen aikuistutkintojärjestelmä. Amerikkalainen järjestelmä ei ole muodostunut yhtenäiseksi, mikä johtunee osittain eri osavaltioiden erilaisista työmarkkinalähtökohdista, perinteistä, koulutusvastuun jaosta ja käytännöistä.

Perustellusti voidaan myös kyseenalaistaa onko ammattitaidon määrittelyillä tai tutkintorakenteella itsenäistä vaikutusta tai merkitystä työmarkkinoiden kehittymisen ennakoimisessa.

Työhönsijoittumisen ohjaus

Työhönsijoittumisen ennakointiin pyritään vaikuttamaan työvoiman ohjauksella, joka käsittää myös tutkintoihin ja koulutukseen tahtavaan ohjauksen. Tulevaisuuden ammattitaitovaatimusten muotoilu nykyhetken ammatillisiksi tutkinnoiksi välittää työmarkkinatietoa ammatillisista kvalifikaatioista koulutusvalintojaan tekeväälle nuorelle, jonka työhön sijoittuminen saat-
taa olla vuosien takana. Samoin aikuinen tarvitsee ohjausta, jos hän on vaihtamassa työpaikkaansa tai pohtii mahdollisuuksi-
aan urakehittelyssä. Ammattitaidon muutos konkretisoituu uuden tutkinnon vaatimuksena tai niissä ehdoissa, joilla tutkinto voidaan saattaa uudelleen ajan tasalle.

Ohjauksen ja tutkinnon yhteys korostuu Skotlannin (SVQ) ja Iso-Britannian (NVQ) järjestelmissä, joissa tutkinnon rakenne tukee ohjausta. Tietoa tutkinnoista antaa ammatillisten tutkintojen tietokanta NVQ Data Base UKn alueella ja SAMI Skotlannissa. Ne sisältävät kaiken tiedon virallisista tutkinnoista, niiden

moduuleista, sisälloistä, suorittamismahdollisuuksista ja vastuullisista toimielimistä. Tietojärjestelmä on työvoimaviramoisten ja oppilaitosten käytössä ja se päivitetään neljästi vuosittain. UKn järjestelmästä vastaa NCVQ-toimisto Lontoossa ja Skotlannin SAMista Curriculum Advice and Support Team (CAST), Scottish School of Further Education, Jordanhill Campus Glasgowissa. Euroopan yhteisön ammatillisen koulutuksen yhteistyöelin CEDEFOP tutkii vastaavan tietojärjestelmän kehittämistä yleiseurooppalaiseen käyttöön.

Ammatin opiskelu

Oppijan kannalta tutkinnot tekevät näkyväksi sen ammattitaidon sisällön ja rakenteen, joka on tarkoitus omaksua. Näin tutkinnot ovat oppimistavoitteen muovaajana konkreettisempia kuin opetussuunnitelmat. Tutkintotilanteet antavat myös oppimisen etenemiselle välttämätöntä palautetta. Palautteen varassa osittain rakentuu myös ammatillinen identiteetti. Nuorisoasteen opiskelijalle ammatillinen pätevyys sisältää paljon työelämässä toimimisen yleisiä valmiuksia sekä yleisiä kansalaisvalmiuksia. Aikuisella, jonka työura jo sisältää tämän kokemuksen, suhde uusiin ammatillisiin kvalifikaatiovaatimuksiin on taitokeskeinen, työn muutoksia koskeva.

Ammatin opettamisessa 'keskustelu' keskittyy aikuisen kohdalla koulutustarpeen diagnostisointiin ja aikaisemman oppimisen tunnistamiseen ja tunnustamiseen, sekä yksilöllisten tai vaihtoehtoisten

kouluttautumismahdollisuuksien etsimiseen ja koulutusohjelman rakentamiseen. Aikuinen odottaa tutkinnolta ennustetta selviytymisestä työtehtävässä ja opetukselta ohjausta tutkinnon luomaan suoriutumistilanteeseen.

Työelämän muutokset heijastuvat aikuisväestön koulutustarpeen (uudelleen-, jatko- ja täydennyskoulutus) lisääntymisenä, jolloin koulutuksessa olevan aikuisväestön tarpeet korostuvat kun aikuisten määrä oppijoina lisääntyy. Koulun rinnalle oppimistilanteiden luojana tulee työelämä (työssäoppiminen) ja oppija itse (omatoiminen itseopiskelu). Koulun tehtävä oppimisen organisoijana, eheyttäjänä ja tutkintoihin valmentajana korostuu.

Aikuisten osuutta korostavat Skotlannin SVQ ja Englannin NVQ tutkinnot. Niiden laatimisessa on pidetty silmällä opiskelijan mahdollisuutta seurata suoritustensa kumuloitumista opiskelun aikana tai jopa ennen sitä ja yhdistää nuorisovaiheen opinnot. Naiden järjestelmien yhteydessä oppijan on myös mahdollista valita helposti aikaisempaa pätevyyttä täydentävää koulutusta tai tiettyyn spesifiin tehtävään päteväittävä tutkinto. Saksan dual-järjestelmä suuntautuu nuorisoasteelle, ja Hollannissa on kehitteillä järjestelmä, joka nivoisi yhteen sekä nuorisotta aikuisopiskelun. Suomen uusi ammatillinen näyttötutkinto on nimenomaan aikuistutkinto.

Koulutuksen ohjaus

Tutkintoihin johtava ammatillinen koulu-

tus ohjautuu joko opetussuunnitelmien kautta tai tutkintojen avulla. Opetussuunnitelmallisessa koulutuksessa voidaan päättötutkinnolla varmistaa opetussuunnitelman toteutuminen ja suunnitelmassa mainittujen tavoitteiden saavuttaminen. Tutkintotavoitteet on kirjoitettu opetussuunnitelmaan esim. Suomen nuorisoasteen ammatillinen koulutuksessa ja Saksan dual-järjestelmässä. Tutkinto-ohjatussa koulutuksessa esim. Englannissa ja Skotlannissa sekä Hollannin kehitteillä olevassa järjestelmässä koulut voivat itsenäisesti suunnitella ja esittää erilaista tutkintoihin johtavaa koulutusta. Koulut voivat laatia koulutusohjelmia sen mukaan, miten tutkintojen sisältämiä kvalifikaatioprofiileja 'auki-luetaan'. Tämä edellyttää kouluttajilta uudenlaisia koulutuksen suunnitteluvälineitä.

Opiskelijoiden menestyminen tutkinnoissa on koulutuksen tuloskriteeri. Tutkintojen määrää ja hylättyjen osuutta voidaan käyttää koulutuksen tuloksellisuutta arvioitaessa.

Koulutuksen ja työelämän yhteistyö koulutuksessa ja tutkintojen järjestämisessä vaihtelevat eri maissa suuresti. Opetussuunnitelmaan perustuvassa koulutuksessa tavoitteiden määrittäminen ja valvontaan osallistuu työelämän edustajia, joten työelämän muutosten heijastuminen koulutukseen edellyttää opetussuunnitelman muutosprosessia. Saksan dual-järjestelmässä osa koulutusta tapahtuu työelämässä, jolloin työelämän muutokset toteutuvat opetussisällöissä jatkuvana luonnollisena prosessina. Työpaikkakoulutuksen osuutta säädelään tällöin opetussuunnitelmalla.

Samoin on Suomen oppisopimuskoulutuksessa. Nuorisokoulutuksessa, johon sisältyy työharjoittelua harjoittelun määrää säädelään opetussuunnitelmassa.

Britannian tutkinnoissa työelämän kvalifikaatiot on kirjoitettu funktionaaliksi moduuliprofiileiksi, jotka kuvastavat suoraan työelämän tehtäviä. Samoin tutkinnossa menestyminen pyrkii ennustamaan työtehtävässä menestymistä. Tutkintoja sertifioiva elin NCVQ (National Council for Vocational Qualifications) sijoittuu kuvion 2 kartassa koulutuksen ja työelämän väliin, koska sen tutkintoja säätelevät elimet (awarding bodies) ovat molemmista näistä irrallisia ja yhteydet tapahtuvat jäsenten kautta yhteiseen sopimukseen perustuen. Itse NCVQ on myös irrallaan koulutuksen tuottamisesta, eikä se osallistu myöskään oppilasarviointeihin, joskin se arvioi ja neuvoa oppilaitoksia laskutusperusteella. Skotlannissa vastaava virasto järjestää ja valvoo myös koulutusta ja sen toiminta on lähellä Suomen opetushallituksen toimintatapaa ja vastuita.

Hollantilainen malli pyrkii jäsentaamaan vastaavalla tavalla kuin Britanniasa ammatilliset pätevyudet funktioprofiileiksi ja niiden osiksi, siitä riippumatta miten kouluttautuminen tapahtuu. Hollannissa on myös kehitteillä tietokanta tutkinnoista ja niiden arviointijärjestelmä. Uusi, koko aikuiskoulutusta ja ammatillista koulutusta koskeva laki on tulossa vuonna 1996.

YHTEENVETO

Eri maiden ammatillisille koulutusjärjestelmille on yhteistä koulutuksen ja tutkintojen kehittäminen työelämän muutoksia yhä joustavammin seuraaviksi. Tarkoituksena on tehdä mahdolliseksi uusien, yhä vaativampien kvalifikaatioiden hankkiminen koko elinikäisen työuran aikana. Muutosten nopeus edellyttää yhä kehittyneempää yhteydenpitoa ja ammattitaitonäkemysten samankaltaisuutta työelämän, työmarkkinoiden, ammatillisen koulutuksen ja opetukseen osallistuvien välillä.

Tutkintojärjestelmillä pyritään

helpottamaan kouluttautumisen jatkamista yhä korkeammalle tasolle ja myös horisontaalista siirtymistä ja vaihtamistatyöuran aikana. Pyrkimys työvoiman liikkuvuuden esteiden poistamiseen näkyy tutkintojärjestelmien kehittämisessä. Sen seurauksena niin koulutus- kuin tutkintojärjestelmätkin kansainvälistyvät rakenteiltaan ja sisällöiltään. Tietotekninen kehitys ja vaatimukset ammatilliselle ohjaukselle ovat vaikuttamassa siihen, että tutkintojen ja koulutuksen rakenteet tulevat yhä 'julkisemmiksi', mikä edellyttää eri ammattialojen tutkintojen yhdenmu-kaistumista, täsmentymistä ja helppoa kommunikoitavuutta.

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